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Timeline of the San Francisco-Oakland Bay Bridge Seismic Retrofit: Milestones in Decision-Making, Financing, and Construction

By Daniel Pollak

*Prepared at the Request of
Assemblymember Wilma Chan, Chair
Joint Legislative Audit Committee*

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C A L I F O R N I A

R E S E A R C H B U R E A U

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TIMELINE OF THE SAN FRANCISCO-OAKLAND BAY BRIDGE SEISMIC RETROFIT

This annotated timeline on the history of the San Francisco-Oakland Bay Bridge was requested by Assemblymember Wilma Chan in her capacity as Chair of the Joint Legislative Audit Committee. In August 2004, the Committee requested that the California State Auditor perform an audit of the implementation of the California Department of Transportation's Toll Bridge Seismic Retrofit Program.

The following chronology begins in 1929, but emphasizes the period from 1989 to the present, beginning with the Loma Prieta earthquake of October 1989. That earthquake revealed the seismic vulnerability of the Bay Bridge. This timeline focuses on the efforts to seismically retrofit the Bay Bridge, especially the project to rebuild its eastern span (the portion running from Oakland to Yerba Buena Island).

1 9 2 9

October 1929

President Hoover appoints commission to investigate bridge feasibility.

President Herbert Hoover and California Governor C. C. Young appoint the Hoover-Young San Francisco Bay Bridge Commission, to investigate the feasibility of constructing a San Francisco-Oakland bridge.¹

1 9 3 0

August 1930

Bridge Commission reports that bridge is feasible and necessary.

The Hoover-Young Commission concludes that construction of the bridge is both feasible and necessary to the development of the region.²

1 9 3 3

July 9, 1933

Construction begins.

The California Department of Public Works begins construction of the San Francisco-Oakland Bay Bridge, the world's longest steel structure.³

1936

November 12, 1936

The Bay Bridge opens.

The San Francisco-Oakland Bay Bridge, built at a cost of \$77.6 million, opens to auto traffic six months ahead of schedule.⁴ At that time, auto tolls on the bridge are collected in both directions, and are 65 cents each way (the \$1.30 round-trip toll is equivalent to \$17.86 in 2004 dollars).⁵

1947

1947

Bond financing of bridge construction authorized.

The California Toll Bridge Authority Act authorizes the California Transportation Commission to issue revenue bonds to acquire, rehabilitate or improve toll bridges. Tolls and other revenues received from vehicles using the bridges will be used to pay the principal and interest on these bonds.⁶

1958

1958

Train service on Bay Bridge ends.

The train tracks on the lower deck of the Bay Bridge are removed to make way for auto and truck traffic.⁷

1971

February 9, 1971

Sylmar earthquake prompts Caltrans retrofit program.

The magnitude 6.6 Sylmar Earthquake causes \$500 million in damage in the San Fernando Valley and claims 65 lives.⁸ This spurs Caltrans to establish a program to seismically retrofit bridges throughout the state.⁹

1977

1977

Financing of bridge maintenance shifts from tolls to State Highway Account.

Maintenance of the three transbay bridges is transferred from toll revenues to the State Highway Account. Toll revenues from these bridges will be used henceforth to support capital programs of transit systems, as well as bridge operating and administrative expenses.¹⁰

1 9 7 8

1978

State relinquishes control of toll bridges.

The California Toll Bridge Authority is abolished. Operation of the Bay Bridge now falls under the joint jurisdiction of the California Transportation Commission and the Metropolitan Transportation Commission (MTC).¹¹

1 9 8 6

November 1986

Bay Bridge re-named the Rolph Bridge.

The San Francisco-Oakland Bay Bridge is officially renamed the “James “Sunny Jim” Rolph Bridge,” in honor of the late governor of California who died in office in 1934.¹²

1 9 8 8

November 5, 1988

Bay Area approves \$1 bridge tolls.

Bay Area voters approve Regional Measure 1, raising tolls on the state-owned toll bridges to a uniform \$1 and pledging the proceeds to improvements such as new spans on the Carquinez and Benicia bridges and the widening of the San Mateo bridge.

1 9 8 9

October 17, 1989

Loma Prieta earthquake.

An earthquake measuring 7.1 on the Richter scale strikes the Bay Area. The earthquake causes 62 deaths and \$5.6 billion in property damage. Most of the deaths are due to the collapse of the Cypress Structure on I-880 in Oakland. On the Bay Bridge, one motorist is killed after a 50-foot section of the upper deck collapses and causes the collapse of the

deck below it. At the time of the earthquake, the Bay Bridge is the nation's most traveled bridge, carrying 243,000 vehicles per day.¹³

November 6, 1989

Governor orders board of inquiry to examine bridge and highway collapses.

Governor Deukmejian creates an independent board of inquiry to investigate the collapse of the Cypress Structure on I-880 and the damage to the east span of the Bay Bridge.¹⁴

November 16, 1989

Repair of the bridge celebrated.

Ceremony to celebrate the repair of the gap in the bridge and the rejoining of San Francisco and Oakland.

1 9 9 0

May 31, 1990

Study urges faster seismic retrofits.

“Competing Against Time,” a report by an independent expert panel, recommends that the state put a higher priority on its seismic retrofitting program.¹⁵

June 2, 1990

Governor forms Seismic Advisory Board.

Governor Deukmejian orders creation of a Seismic Advisory Board to advise Caltrans on seismic safety issues.¹⁶

1 9 9 1

January 7, 1991

Governor Pete Wilson inaugurated.

1 9 9 2

September 10, 1992

UC Berkeley team estimates Bay Bridge east span retrofit will cost \$150-200 million.

Caltrans reports the results of a preliminary study on the east span. The report, prepared for Caltrans by a UC Berkeley team, estimates that the east span could be retrofitted at a

cost \$150-200 million. Replacement is estimated to be more costly - in excess of \$1 billion.¹⁷

1993

October 1993

Treasure Island Naval Station targeted for closure.

The federal Base Realignment and Closure Commission recommends to the Department of Defense the closure of the Treasure Island Naval Station in 1997.¹⁸

1994

January 17, 1994.

Northridge earthquake strikes Southern California.

A 6.7 magnitude quake shakes the metropolitan Los Angeles area at 4:30 a.m. The earthquake causes 57 fatalities and extensive structural damage, including the collapse of several freeway sections.¹⁹ Governor Wilson soon orders an urgent rebuilding of damaged LA-area freeway overpasses. In addition, Caltrans assigns new personnel to the bridge retrofit program and increases efforts to design a retrofit strategy for the Bay Bridge's east span.²⁰

October 1994

Seismic Advisory Board calls for accelerated retrofitting of toll bridges.

An independent advisory board submits a report to Caltrans about the Northridge Quake, entitled "The Continuing Challenge." It reports that while Caltrans' retrofit program is basically sound, it is proceeding too slowly due to budgetary, administrative, legal, and personnel constraints. The report notes that Caltrans has 12,176 bridges, three-fourths of which were designed under inadequate seismic standards.²¹

1995

Summer 1995

Advisory Board suggests Caltrans consider replacing rather than retrofitting the Bay Bridge.

Caltrans' Seismic Advisory Board suggests that Caltrans should consider replacing rather than retrofitting the Bay Bridge, due to the likely high costs of retrofitting. Caltrans subsequently begins work on a "30 percent design" study for a replacement bridge (a study that carries the design work to 30 percent of completion).²²

August 3, 1995

*Caltrans notifies the Navy that it needs to use land on Yerba Buena Island for the Bay Bridge retrofit.*²³

September 1995

Legislature approves \$650 million toll bridge seismic retrofit plan for March ballot.

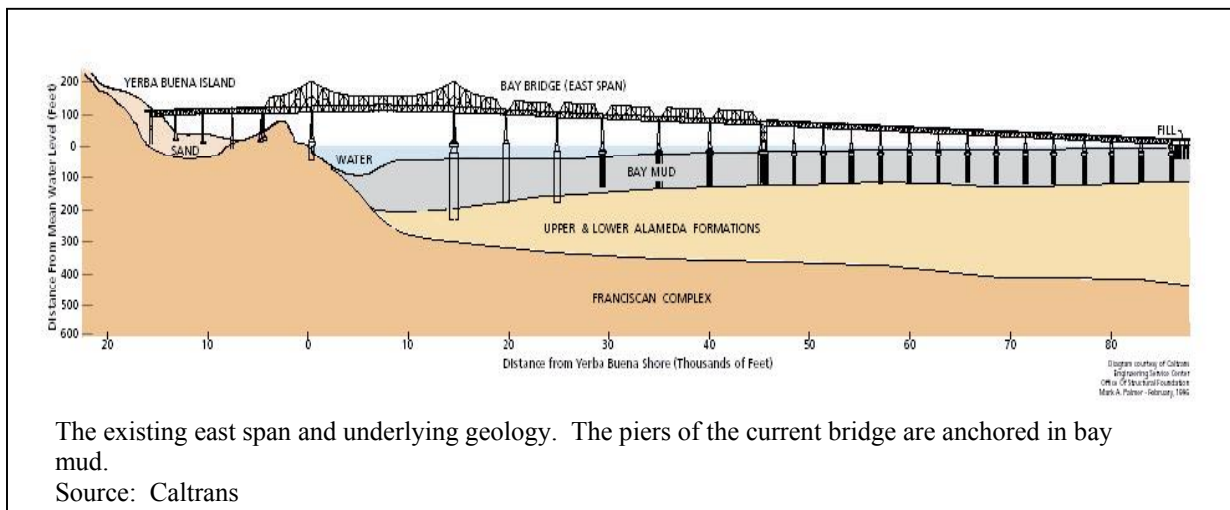
The legislature approves placement of Proposition 192 on the March 1996 ballot. The \$2 billion general obligation bond measure will include \$650 million earmarked for seismic retrofit of state-owned toll bridges, based on what Caltrans says is the best available estimate of costs.²⁴

1996

January 30, 1996

Caltrans announces east span replacement needed and cost estimates have doubled.

Caltrans announces that it could be more cost effective to replace the east span of the bridge. The costs for fixing the Bay Bridge could go as high as \$1.3 billion.²⁵ Caltrans engineers say it may take a year to determine whether to build a new east span or retrofit the old one. Governor Wilson and Southern California legislators say that toll funds should be used to finance much of the work.²⁶



March 26, 1996

Voters approve seismic retrofit bonds.

California voters approve Proposition 192, the Seismic Retrofit Bond Act of 1996, which authorizes \$650 million for seismic retrofit of state-owned toll bridges.

March 28, 1996

Caltrans requests an easement on Yerba Buena Island from the Navy.

Caltrans informs the Navy that it needs a 100 meter wide right of way along the route of the existing bridge for the retrofit project, as well as several additional easements for other construction activities on the island.²⁷

May 15, 1996

Navy voices concern about impacts on historic buildings.

The Navy tells Caltrans that it is concerned about the impacts the Bay Bridge project could have on historic buildings on Yerba Buena Island such as the Nimitz House.²⁸

July 9, 1996

*Caltrans requests permission from the Navy to enter Yerba Buena Island for land surveys and other field investigations.*²⁹

July 25, 1996

City and County of San Francisco adopt plan for Treasure Island.

San Francisco adopts a draft reuse plan for Naval Station Treasure Island and Yerba Buena Island. The plan envisions a variety of possible uses, including nonprofit organizations, hotels, theme park attractions, film production, entertainment facilities, parks, plazas, expansion of the marina, a federal employment training center, development of housing and live/work units.³⁰

August 26, 1996

Navy rejects Caltrans proposal for mitigating historic building impacts.

The Navy asks for changes in a proposed memorandum of agreement with Caltrans, saying it does not adequately address impacts on historic buildings on Yerba Buena Island.³¹

December 1996

Consultant report recommends replacement over retrofit.

A study by Ventry Engineering of Florida recommends replacing rather than retrofitting the east span of the Bay Bridge. It estimates the cost at \$843 million for a bridge that includes a cable-stayed suspension span.³²

December 10, 1996

Experts recommend Bay Bridge replacement.

Two expert panels, the Seismic Advisory Board and the Peer Review Panel for the Seismic Safety Review of the Toll Bridge Retrofit Designs, “strongly recommend” that

Caltrans build a new east span rather than retrofit the old one. They say that in the long run a new bridge will be both safer and more economical.³³

Meanwhile, Caltrans' head bridge engineer recommends that Caltrans "proceed immediately" with the design and construction of a replacement east span and conduct an interim retrofit in the meantime.³⁴ His cost-benefit analysis notes that prior estimates place the cost of replacing the bridge at an average of \$987 million, depending on the chosen design. He estimates the cost of retrofit without replacement at \$909 million. He estimates a 90 percent probability that a replacement span could be completed within eight and a half years (by mid-2004).³⁵

1997

January 15, 1997

Navy tells Caltrans it plans to transfer Yerba Buena Island to San Francisco.

The Navy tells Caltrans it plans to transfer the entire island to the City. Caltrans opposes the move. Caltrans also disagrees with the Navy's contention that Caltrans is obligated to retrofit and maintain the ramps connecting the bridge to the island.³⁶

January 29, 1997

*Caltrans management decides on replacement of east span rather than retrofit.*³⁷

February 13, 1997

Governor Wilson announces that the east span will be rebuilt rather than repaired. Discussion begins of design and costs.

Governor Wilson accepts the recommendation to replace rather than retrofit the east span.³⁸ A replacement span is recommended because its piers could be attached to bedrock, unlike the current wooden piers anchored in bay mud. It could last 150 years instead of the projected 65-year life of a retrofit. And the increasing cost estimates of the retrofit make a new bridge potentially more cost-effective.³⁹

Bay Area officials are told that the state will pay for a basic concrete aqueduct-style bridge, which Caltrans says could be built north of the existing structure, would cost an estimated \$1.52 billion, and could be open to traffic within seven years.⁴⁰

The Wilson administration says that if the Bay Area wants a more aesthetically pleasing design, it will have to pay the extra cost, most likely through new bridge tolls.⁴¹ The Wilson administration gives the region until July to decide what kind of bridge to build, in order to meet a 2004 deadline to complete the project.⁴²

The viaduct alternative is described by one leading expert as "just a typical overpass, but you stretch it for two miles ... Nobody is going to put it on a postcard of the Bay Area, I assure you."⁴³ Bay Area leaders soon indicate their inclination toward a more attractive

design. “It should make a statement about the beauty of our side of the bay,” says Berkeley Mayor Shirley Dean.⁴⁴

Senate President Pro Tem Bill Lockyer says it is reasonable to ask for a local contribution to the cost.⁴⁵ He suggests that a task force of experts and regional officials be convened to consider design options.⁴⁶

How this and other Bay Area bridge retrofits will be paid for is still uncertain. According to state officials, Bay Area motorists will be expected to pay higher bridge tolls to provide at least \$400 million of the cost of a new bridge regardless of the design.⁴⁷ Wilson says that the state can provide \$500 million in state highway funds.⁴⁸

However, the total cost of retrofitting Bay Area bridges is expected to be well above \$2 billion. Caltrans is estimating the cost of a new Bay Bridge east span of the viaduct type at \$1.5 billion, and the cost of a two-towered cable-stayed bridge at \$1.7 billion.⁴⁹



Artist's rendering of the basic viaduct-style east span proposed by Governor Wilson (sometimes referred to as the “skyway” design). Subsequent designs will incorporate a suspension section with tower over the navigation channel adjacent to Yerba Buena Island.

Source: Caltrans

February 24, 1997

Northern and Southern California lawmakers in dispute over funding bill.

Inter-regional disputes over bridge funding are on display when legislators from Southern and Central California introduce AB 465. The bill caps the state highway fund

contribution to the bridge retrofits at \$300 million, while authorizing new Bay Area bridge toll hikes to pay for up to \$1.1 billion. The measure is strongly opposed by Bay Area legislators. “This is rejected out of hand,” says San Francisco Senator Quentin Kopp.⁵⁰

February 26, 1997

Negotiations over bridge funding break down.

Negotiations between Bay Area legislators and the Wilson administration break down over the share of bridge retrofit funding that should be paid out of state funds versus bridge toll revenues. Senate President Pro Tem Bill Lockyer threatens litigation. Wilson withdraws an offer of \$500 million in state highway funds to address the funding gap, estimated at \$1.2 billion.⁵¹

March 1997

Caltrans report produces new cost estimates.

A Caltrans economic analysis concludes that the cost of a new, basic viaduct-style bridge would be \$1.3 billion. The cost of a cable-stayed span would be \$1.33-1.47 billion.⁵²

March 1997

Metropolitan Transportation Commission (MTC) Appoints Bay Bridge Design Task Force.

MTC appoints the Bay Bridge Design Task Force to forge a regional consensus on the design of the span replacement project. The Task Force consists of seven MTC commissioners representing Alameda, Contra Costa and San Francisco counties, as well as a representative of the Bay Conservation and Development Commission.⁵³

The task force in turn appoints a 34-member Engineering and Design Advisory Panel (EDAP) to advise the Task Force. The EDAP will review engineering and design criteria, screen bridge design alternatives, and make recommendations on design.

March 10, 1997

Navy spurns Caltrans request for land on Yerba Buena Island.

The Navy asks Caltrans to withdraw its application for land and access, saying there are too many unresolved issues, including construction impacts on historic buildings, funding of improved ramps onto the island, and lead contamination underneath the existing bridge. Three days later, the Federal Highway Administration asks the Navy to approve Caltrans' request.⁵⁴

March 27, 1997

Bay Bridge Design Task Force begins work.

The Bay Bridge Design Task Force holds its first of four public hearings to consider alternatives for replacing the east span.⁵⁵

April 9, 1997

First meeting of the Engineering and Design Advisory Panel.

The first meeting is devoted to a set of draft engineering and design criteria developed by San Francisco Bay Conservation and Development Commission (BCDC), Caltrans, and MTC staff.⁵⁶

April 21, 1997

Environmental review process begins.

Caltrans and Federal Highway Administration begin the environmental review for the east span project by filing a Notice of Intent to prepare a Final Environmental Impact Statement in the Federal Register.⁵⁷

May 8-9, 1997

Bicycle lane cost estimated.

Caltrans reports that a bicycle lane added the full length of the bridge would cost up to \$167 million. The next day, the Santa Clara County Valley Transportation Authority endorses a bicycle lane in a letter to the Design Task Force.⁵⁸

May 12-14, 1997

Bay Bridge Design Task Force holds workshop to review proposals.

The Engineering and Design Advisory Panel (EDAP) holds a workshop to review design proposals for the eastern span of the Bay Bridge. The panel reviews four designs proposed by Caltrans, and 10 other designs submitted by outside firms.

May 18, 1997

Engineering and Design Advisory Panel (EDAP) endorses two possible designs.

The EDAP votes unanimously to narrow the choices to two: a single-tower, self-anchored suspension span and a single-tower, cable-stayed span. EDAP says that only relatively minor construction cost differences exist among the alternatives, so the decision hinges largely on aesthetics.⁵⁹ The panel postpones making a final decision for a year, but recommends that Caltrans hire two or more world-class engineering/design firms to further develop both design options.⁶⁰



Artist's rendering of a cable-stayed design for the east span, viewed from the south with Yerba Buena Island on the left. In the cable-stayed design, the cables radiate directly from the tower to the bridge deck.

Source: Caltrans

May 15, 1997

Oakland official calls for "world-class design."

Oakland's public works director writes to the design task force and asks that the new bridge include a bicycle/pedestrian path, be capable of accommodating rail, and have a "world-class design." The bridge should be capable of "creating an inspirational identity for Oakland and the East Bay."⁶¹ The City of Oakland also expresses preference for a northern alignment of the bridge, so as to minimize impacts on the City's port.⁶²

June 2, 1997

Engineering and Design Advisory Panel (EDAP) narrows design choices to three.

EDAP narrows the possible design choices from four to three, eliminating a proposed single tower "curved cable stayed" bridge design. Remaining under consideration is a single tower cable stayed bridge, a single tower self-anchored suspension bridge, or the baseline "viaduct" design with no suspension span. At this time, Caltrans estimates the baseline viaduct bridge would cost \$1 billion. Choice of a cable stayed bridge would add eight percent to the cost, and the self-anchored suspension choice is estimated to add 34 percent over the baseline cost.⁶³

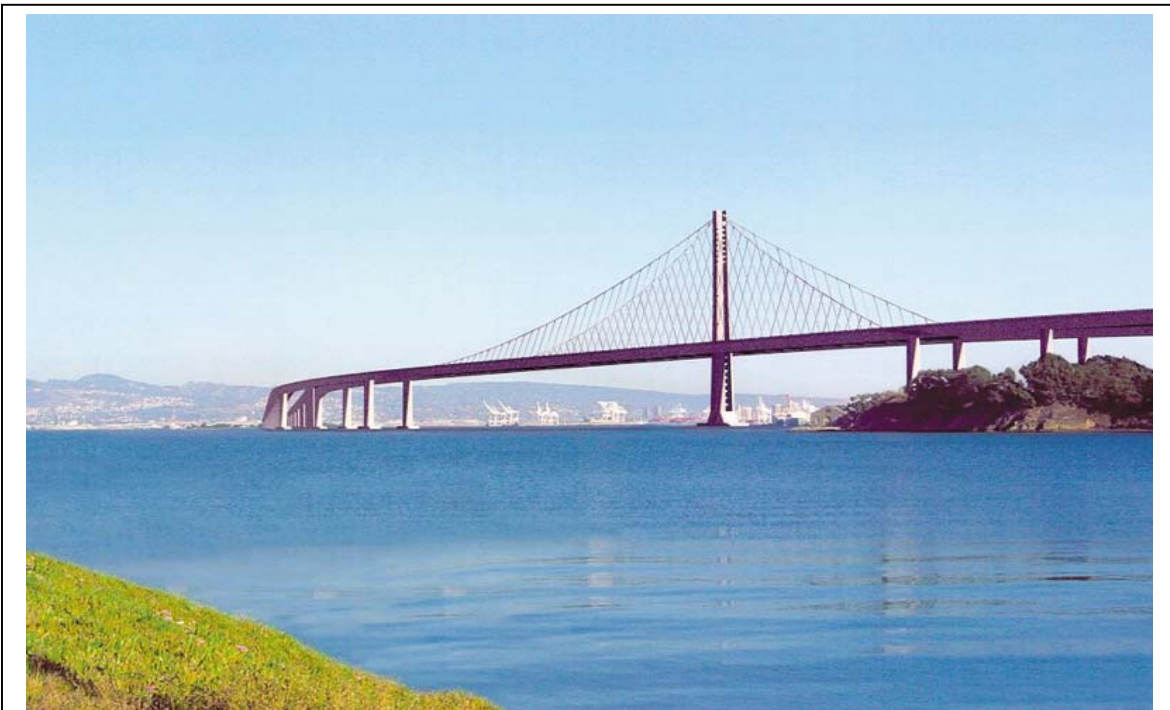
June 12, 1997

Mayor Brown opposes northern alignment.

In a letter to the Design Task Force, San Francisco Mayor Willie Brown says that he opposes the proposed northern alignment because it “precludes development of most of the flat, developable land on Yerba Buena Island.” He also calls for the new bridge to provide better access ramps for the island and a new Transbay Terminal.⁶⁴

June 13, 1997

*Coast Guard voices preference for northern alignment in order to avoid impacts on their facilities on Yerba Buena Island.*⁶⁵



Artist's rendering of the self-anchored suspension (SAS) design for the east span. It differs from the cable-stayed design in having its straight vertical support cables attach to long curving suspension cables, instead of radiating directly from the tower. It differs from other Bay Area suspension bridges because the suspension cables themselves are anchored to the bridge deck, rather than to anchorages on either side of the bridge.

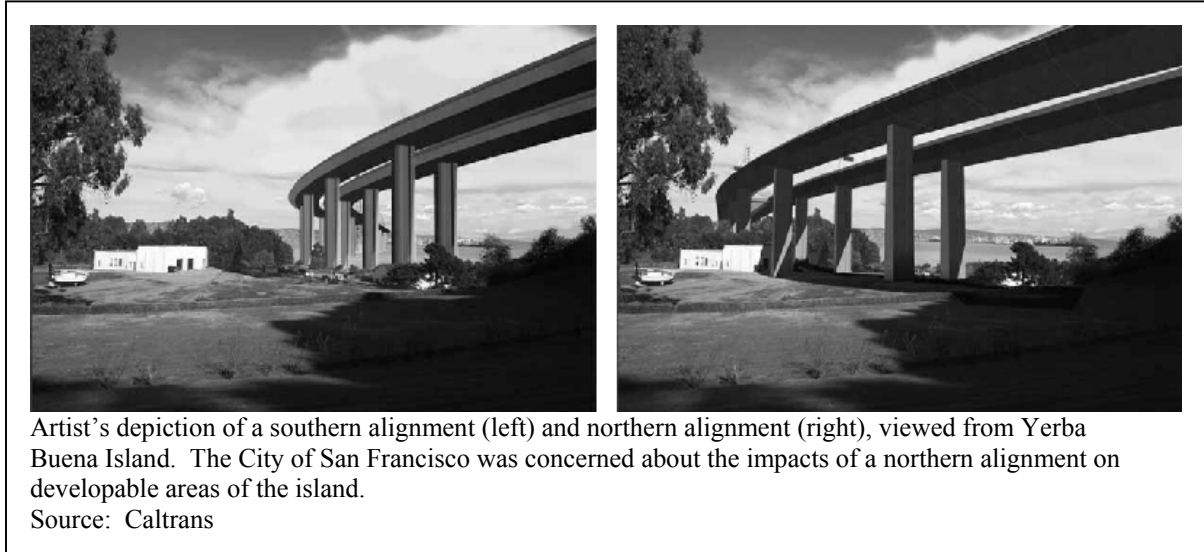
Source: Caltrans

June 20, 1997

Metropolitan Transportation Commission (MTC) director says July design decision not possible.

The Executive Director of the MTC says that it will not be possible to select a bridge design by July, despite the expectations to that effect expressed by the Governor and Legislature when the process was began. “Additional engineering is required to define a

specific bridge type, alignment and budget because of the complex interactions between the geometric transition to Yerba Buena Island, the geology of the bay, the structure types and the tower configuration.” He says if Caltrans moves forward with 30 percent design studies of different alternatives, this will provide needed information without delaying the overall project.⁶⁶



June 24, 1997

Bicycle advocates make their voices heard.

A summary of public comments received so far is presented to the Bay Bridge Design Task Force. During the prior three months, a total of 179 people have commented on the options for the overall design of the bridge. During the same period, 6,674 people commented in favor of including a bicycle lane.⁶⁷

July 18, 1997

Caltrans director urges Design Task Force to make decision soon.

Caltrans Director James W. van Loben Sels urges the Design Task Force to complete its deliberations and choose a bridge design this month. “Every day of delay increases the risk of a temblor striking ... A design competition, as recommended by EDAP, is unneeded.”⁶⁸

July 21, 1997

Mayor Brown voices support for northern alignment.

In a letter to the Design Task Force, San Francisco Mayor Willie Brown reverses his earlier position and expresses support for a northern alignment. “It is my feeling that the economic development opportunities to the Port of Oakland outweigh the economic opportunities to San Francisco at Yerba Buena Island ... I am willing to support the

efforts of the majority of this task force to support a northern alignment.” He also argues the case for replacing the Transbay Terminal and improving the ramps leading to and from Treasure and Yerba Buena Islands.⁶⁹

July 23-24, 1997

Design Task Force endorses northern alignment and narrows design choices; says it cannot make final selection yet.

The Task Force says it needs more time for analysis and cannot meet the deadline to pick a final design for another year. But it endorses a northern alignment and says the east span will include a single tower span of the cable stayed or self-anchored suspension (SAS) type. It says that in order for it to choose a final design, the state needs to conduct 30 percent design studies for each of the two recommended designs. In addition, the Legislature must produce a plan that determines the state-regional cost sharing for the bridge.⁷⁰

July 30, 1997

Metropolitan Transportation Commission (MTC) makes design recommendations and identifies bridge amenities that may be funded.

The MTC recommends replacing the east span on a northern alignment adjacent to the existing bridge.⁷¹ It also recommends that Caltrans should develop two design types to the 30 percent completion stage: a self-anchored suspension span and a cable-stayed span. This would provide more information about the relative seismic performance, cost and aesthetics of each type before a final decision was made.⁷²

MTC recommends that the bridge be built to a “lifeline” standard⁷³ (which would ensure that the bridge is usable by emergency crews after a large earthquake).⁷⁴

MTC also identifies a list of three priority amenities that may be funded with toll revenues: 1) a cable-supported main span across the shipping channel adjacent to Yerba Buena Island (as opposed to a continuous causeway from Oakland to the Island); 2) renovation or relocation of the Transbay Transit Terminal; 3) building a bicycle/pedestrian path on the new span.⁷⁵

August 5, 1997

Legislators, Wilson reach agreement on funding; accord to raise bridge tolls by \$1.

After negotiations between Bay Area and Southern California representatives, legislative leaders announce an agreement that Bay Area bridge tolls will be raised by \$1 to pay for Bay Area toll bridge retrofits. The toll increase will raise about \$920 million over an eight-year period.⁷⁶ Bay Area lawmakers opt for the toll increase in order to prevent the state from paying for the bridge retrofits using funds from Measure 1, an earlier \$1 toll increase intended to fund other Bay Area projects.

August 20, 1997

Legislation for Bridge funding plan signed (SB 60 and SB 226).

In a ceremony on Treasure Island, Governor Wilson signs SB 60 and SB 226, a pair of bills funding the toll bridge retrofit projects. “By building a new (Bay Bridge), we are bringing peace of mind to the 280,000 motorists who depend on this span every day,” Wilson says.⁷⁷

At this time, the state estimates that the Bay Bridge west span retrofit will cost \$553 million, and the east span replacement will cost \$1.28 billion. The latter figure does not yet take into account the cost of a “signature” suspension span like the ones recommended by MTC.

In all, the legislation addresses \$2.6 billion worth of expected funding needs for toll bridge retrofits. Under SB 60, Bay Area bridge tolls can be raised from \$1 to \$2. The surcharge, set to expire no later than 2008, is intended to raise \$907 million. It can be extended to raise additional funds if MTC chooses a bridge design that includes a suspension span, relocation of the Transbay Terminal, or a bicycle lane.

The remainder of the costs are to be financed through a combination of sources, including: at least \$745 million in State Highway Account funds, \$650 million from the Seismic Retrofit Bond Act of 1996, and \$140 million from surplus bond revenues previously designated to the state’s seismic retrofit program.

Bay Area representatives wanted to protect funds raised when Bay Area voters increased tolls by \$1 in 1988. SB 226 gives the MTC control of Bay Area bridge toll revenues.*

At this time, Caltrans estimates that replacement of the east span can be completed as early as 2004.⁷⁸

September 5, 1997

Mayor Brown promises cooperation on Yerba Buena Island.

San Francisco Mayor Willie Brown sends Caltrans a letter stating that if the Navy conveys Treasure and Yerba Buena Islands to the City, the City will provide Caltrans with needed easements for the Bay Bridge.⁷⁹

September 30, 1997

Naval Station Treasure Island closes; operations and maintenance turned over to City of San Francisco.⁸⁰

October 8, 1997

San Francisco Transbay Terminal proposal meets heavy East Bay opposition.

* This involves creating a new entity, the Bay Area Toll Authority (BATA), which is the same as Metropolitan Transportation Commission (MTC).

Dozens of East Bay officials voice opposition to a plan proposed by the City of San Francisco that would use at least \$80 million in Bay Bridge toll money to help pay for a new Transbay Transit Terminal in the City. East Bay officials want the terminal upgraded rather than moved.⁸¹

October 12, 1997

Treasure Island Development Authority created.

Governor Wilson signs AB 699, creating the Treasure Island Development Authority. This law will give San Francisco control over Yerba Buena and Treasure Islands once the Navy leaves. Eight days later, the City of San Francisco unveils a \$12 million marina development plan.⁸²

November 1997

Caltrans hires team to conduct 30 percent design studies on alternatives.

Caltrans retains the joint-venture team of T.Y. Lin International/Moffatt & Nichol Engineers to develop designs for the self-anchored suspension and the cable-stay bridge types to the 30 percent stage.⁸³

1998

January 1, 1998

Bridge tolls go up to \$2.

Tolls on state-owned bridges go up to \$2, with \$1 going into the state's seismic retrofit fund.⁸⁴

February 5, 1998

East span interim retrofit set to commence.

Caltrans awards the contract for an interim seismic retrofit of the east span of the Bay Bridge.⁸⁵

April 1998

Proposed bridge designs drawing criticism.

An article in the San Francisco Chronicle notes, "A month after they were unveiled, the designs for a new eastern half of the Bay Bridge are receiving less than rave reviews from a group of leading Bay Area architects, engineers and urban planners. The critics say that the four proposals being developed by a team of designers headed by T.Y. Lin International, while admittedly still in the rough early stages, lack the elegance and grace of the bay's other signature spans."⁸⁶

May 1998

West span retrofit begins.

Work begins on the retrofit of the west span with the strengthening of foundations in the water.⁸⁷ Eventually, the retrofit will include, among other things, the installation of dozens of shock absorbers to allow the deck to move 2-4 feet in an earthquake. Hundreds of thousands of old rivets and bolts will be replaced, and stronger cross-braces will be installed in the deck. The San Francisco freeway approaches will also be replaced. The work is expected to cost \$550 million and take seven years.⁸⁸

May 11, 1998

Thirty percent design document released; costs are higher.

Caltrans' 30 percent design report estimates the cost of the east span with the self-anchored suspension (SAS) design at \$1.50-\$1.56 billion, and the cost of the cable stayed option at \$1.45-1.5 billion.⁸⁹ The estimated cost for the east span when the Legislature passed the funding plan in August 1997 had been \$1.28 billion.

May 14, 1998

City of Oakland reiterates objections to bridge design.

Oakland's Director of Public Works writes to the Design Task Force that the viaduct portion of the bridge, constituting 85 percent of the span, has "no more design flair than a freeway overpass." She asks that more consideration be given to additional design elements.⁹⁰

May 29, 1998

Engineering and Design Advisory Panel (EDAP) recommends self-anchored suspension (SAS) span.

The 33 architects and engineers on the Bay Bridge EDAP recommend a single-tower, SAS span. The design will include the original viaduct design recommended by Governor Wilson with a "signature" suspension section near Yerba Buena Island.⁹¹

June 1998

Mayor Brown withdraws support for northern alignment.

San Francisco's mayor indicates he opposes a northern alignment, which he previously endorsed, saying it will interfere with the City's reuse plans for Yerba Buena Island.⁹²

June 17, 1998

Metropolitan Transportation Commission (MTC) staff recommends that Transbay Terminal not be funded at this time.

Staff recommends to the Commission that it defer a decision on relocating or replacing the San Francisco Transbay Transit Terminal “until such time as sufficient consensus has been achieved.”⁹³

June 18, 1998

East Bay leaders criticize bridge design.

Several East Bay leaders write to the Bay Bridge Design Task Force to complain that the process has “not produced a world class design that establishes a sense of gateway and place for the East Bay.” They call for further analysis of alternative designs, as well as inclusion of a bicycle/pedestrian lane, rail, and other features. The signers include the mayors of Oakland, Berkeley, Emeryville, Alameda, Piedmont, and Albany, as well as Assemblymembers Don Perata and Dion Aroner, and the president of the Alameda-Contra Costa (AC) Transit Board.⁹⁴

June 24, 1998

Design Task Force chooses bridge design.

The Bay Bridge Design Task Force accepts the recommendation of the Engineering and Design Advisory Panel on the design of the east span. The east span design will actually consist of four distinct parts: a low-rise “Oakland Approach;” the longest section, a pier-supported “Skyway;” a signature single tower, self-anchored suspension span; and a fourth section connecting to the east side of Yerba Buena Island. The new east span will have two side-by-side bridges with five lanes each, plus shoulders and a bicycle/pedestrian path.⁹⁵ If built, it will be the world’s longest single tower, self-anchored suspension bridge.

June 24, 1998

Metropolitan Transportation Commission (MTC) approves bridge design.

The MTC votes 11-1 to adopt the design recommended by the Design Task Force.⁹⁶

Annemarie Conroy, executive director of the San Francisco’s Treasure Island Development Authority threatens to sue over the design, saying that the northern alignment will undermine the city’s efforts to develop Treasure Island.⁹⁷

Oakland Mayor Elihu Harris, the only dissenting vote on the Commission, derides the aesthetics of the structure. Other Bay Area officials follow suit. Oakland’s Assemblymember Don Perata says he hopes to place a measure on the November ballot that would allow voters to rescind the MTC decision and establish an open design competition. Oakland Mayor-elect Jerry Brown says “This battle is by no means over,” and expresses hope that a new Legislature and governor in October will open another opportunity to seek “excellence” rather than “mediocrity” in the bridge design. In Brown’s opinion, the design review process was “fatally flawed” by conflicts of interest and “must be rejected.”⁹⁸

According to Caltrans, the choice of the self-anchored suspension (SAS) design, along with the inclusion of a bicycle/pedestrian path increases the cost of the bridge by \$141 million beyond the projected cost of a baseline viaduct-style bridge originally recommended by Caltrans. The MTC will approve a 15-month extension of the \$1 seismic retrofit surcharge on bridge tolls to generate the needed additional funds.⁹⁹

June 26, 1998

Legislation authorizes bicycle path funding.

Governor Wilson signs into law AB 2038 (Migden), which adds a bicycle/pedestrian path on the existing west span of the Bay Bridge as a fourth “amenity” eligible for funding from the \$1 bridge toll increase.¹⁰⁰

July 1998

Navy denies Caltrans access to conduct geological study on Yerba Buena Island.

Caltrans is denied permission from the Navy to perform test drillings of 4-inch holes on Yerba Buena Island. The Navy informs Caltrans that before they will consider granting Caltrans engineers access, Caltrans will have to first prepare an environmental impact statement under National Environmental Policy Act (NEPA). The Navy will continue to block Caltrans’ access for these tests for another year.¹⁰¹

September 24, 1998

Draft Environmental Impact Statement released.

The Federal Highway Administration (FHWA) releases the draft Environmental Impact Statement (EIS) required under the National Environmental Policy Act (NEPA). Highway seismic retrofits such as the Bay Bridge project are statutorily exempt from the requirements of California Environmental Quality Act (CEQA), so there is no Caltrans Environmental Impact Report.¹⁰²

In the Draft Environmental Impact Statement, the total time necessary to complete the construction of a new east span is 51 months.¹⁰³

November 3, 1998

Bay Area voters recommend Bridge rail.

Voters in San Francisco, Oakland, Berkeley and Emeryville pass identical ballot initiatives recommending Metropolitan Transportation Commission (MTC) and Caltrans include passenger rail service on the Bay Bridge.

November 20, 1998

Lawsuit over contracting out engineering services settled in favor of state employees.

The Wilson administration and the union representing Caltrans engineers settle a 13 year-old lawsuit over how the state contracts out engineering services. The state agrees to

significantly limit its use of outside engineers on the Bay Bridge project and have Caltrans hire 1,000 new employees.¹⁰⁴

November 22, 1998

Study by San Francisco consultant advocates southern alignment.

An engineering study commissioned by the City of San Francisco finds that a southern alignment would be “superior to all of the alignment alternatives proposed” in the environmental impact statement, in terms of cost, environmental impacts, and impact on other development plans.¹⁰⁵

November 23, 1998

San Francisco and Navy voice criticisms of project and Draft Environmental Impact Statement (EIS).

In comments on the Draft EIS, the City of San Francisco says that Metropolitan Transportation Commission (MTC) and Caltrans have biased the process toward selection of a northern alignment by proceeding with design and site investigations while neglecting to fully assess other alternatives. The City and the Navy fault the Draft EIS as deficient in its analysis of several categories of impacts, including land use, visual impacts, historic resources, bicycle safety, geology, and noise.¹⁰⁶

December 7, 1998

Bay Area leaders call for rail study and a halt to design work.

A letter to the MTC and Caltrans requests a “thorough and comprehensive” study of the passenger rail service options for the bridge. During this time, design work for the bridge “should cease.” The mayors of Berkeley, Emeryville, Oakland, and San Francisco sign the letter.¹⁰⁷

December 28, 1998

Caltrans officially chooses northern alignment.

Caltrans announces that after reviewing the public comments on the Environmental Impact Statement, it has identified the northern alignment as the preferred alternative for the Bay Bridge project.¹⁰⁸

December 30, 1998

Seismic Advisory Board appeals to Senator Boxer to intervene in dispute with Navy.

The Caltrans Seismic Advisory Board asks Senator Barbara Boxer to assist in obtaining the Navy’s permission for Caltrans to do geological testing on Yerba Buena Island. They say that delays in the bridge’s progress “undoubtedly will jeopardize public safety.”¹⁰⁹

1999

January 4, 1999

Governor Gray Davis inaugurated.

February 1999

Governor Davis asks for advice on realigning the bridge.

Governor Davis asks his new Caltrans Director, Jose Medina, to review estimates regarding the cost of changing the alignment of the Bay Bridge.¹¹⁰

February 1999

Bridge Design Task Force reconvenes.

The Bay Bridge Design Task Force reconvenes to hear San Francisco's objections to the design. Supporting the City's opposition to the current plans is UC Professor Abolhassan Astaneh-Asl, who led the UC Berkeley team that supported seismically retrofitting the existing bridge back in 1992. He tells the panel about his concern that the new bridge wouldn't withstand a major earthquake.¹¹¹

February 8, 1999

City of San Francisco boycotts meetings to protest northern alignment.

Annemarie Conroy, executive director of the San Francisco's Treasure Island Development Authority, tells Caltrans the City will no longer participate in memorandum of agreement meetings because the state will not reconsider the northern alignment of the bridge.¹¹²

February 11, 1999

The Mayors Brown asks Governor Davis to reconsider choice of alignment.

A letter from Mayors Jerry and Willie Brown urges Governor Davis to consider a southern alignment, provide for rail on the bridge, and hold an international design competition.¹¹³

February 16, 1999

Oakland City Council endorses redesign.

The Oakland City Council unanimously resolves that the bridge design process should be reopened, and should include rail and possibly a park at the bridge's base.¹¹⁴

February 19, 1999

Bridge engineering design firm alleges that design competition was unfair and fraudulent.

In a letter to Caltrans Director Jose Medina, Coman Feher Associates complain that the bridge design competition was rigged and that the chosen design is faulty and unsafe. They point out that several members of the Engineering Design Advisory Panel (EDAP) were themselves participants in the competition. They allege that the EDAP only gave cursory consideration to most submissions, and that they did not employ any explicit criteria in evaluating them.¹¹⁵

February 22, 1999

Navy says it won't sign memorandum of agreement.

Navy tells Caltrans in a letter that it will not sign a memorandum of agreement that assumes the northern alignment of the east span.¹¹⁶

February 23, 1999

Association of Bay Area Governments urges end to bridge debate.

The Association of Bay Area Governments sends a letter to Metropolitan Transportation Commission (MTC) saying that “a significant majority of cities and counties around the Bay would agree that the cost of any delays and the seismic safety risk preclude any consideration of delaying the bridge.” The bridge design process was, it says, sufficiently open and democratic to “stop the commotion and proceed with bridge construction.”¹¹⁷

February 24, 1999

Bay Bridge Design Task Force and engineering panel reconvene for alignment debate.

In a special joint session, the Design Task Force and EDAP meet to hear a briefing by the City of San Francisco on its proposal for a southern alignment.¹¹⁸

March 11, 1999

Governor Davis says build it now.

Governor Gray Davis expresses opposition to the proposals to re-do the Bay Bridge design process. “It’s been 10 years since the earthquake, and we need to fix the bridge,” Davis says.¹¹⁹

July 28, 1999

Governor Davis protests to the Secretary of the Navy.

Governor Davis writes to the Secretary of the Navy objecting to the Navy’s refusal to allow Caltrans access to Yerba Buena Island for geological testing.¹²⁰

August 27, 1999

Meeting of conflicting stakeholders convened in the White House.

Officials from Caltrans, the City of San Francisco, the Navy, the U.S. Department of Transportation, and the Federal Highway Administration, meet in Washington D.C. with

White House aides to discuss disputes about the bridge. The Navy agrees to act on Caltrans' request for access to Yerba Buena Island, and the parties agree to meet again to discuss impacts of construction on Navy facilities.¹²¹

September 1999

Key environmental review meeting cancelled.

A key part of the National Environmental Policy Act (NEPA) process, a meeting between Caltrans and federal agencies to identify the "Least Environmentally Damaging Practicable Alternative" under the Clean Water Act, is canceled due to disputes and requests for information among the various agencies. Issues to be resolved included Navy concerns about the environmental impact of drilling on Yerba Buena Island, concerns about the economic impacts of construction on Yerba Buena Island development plans, and Oakland Mayor Jerry Brown's questions about the alignment. The meeting will be delayed until October 2000.¹²²

September 23, 1999

Navy grants permission to drill on Yerba Buena Island.

More than a year after first requested, the Navy gives Caltrans permission to bore holes on Yerba Buena Island to collect geological information for east span design.¹²³

October 17, 1999

10th Anniversary of the Loma Prieta earthquake.

On the 10th anniversary of the Loma Prieta earthquake, the U.S. Geological Survey releases a study predicting a 70 percent chance of a major (6.7+) earthquake striking the Bay Area in the next 30 years.¹²⁴

December 8, 1999

Consultant study tells MTC that adding rail to the bridge would cost \$3 billion.¹²⁵

Mid-December 1999

Governor Davis appeals to White House to intervene in dispute with Navy.¹²⁶

Governor Davis asks White House Chief of Staff John Podesta to help Caltrans acquire Navy property on Yerba Buena Island. In hopes of resolving the disputes, the White House orders the U.S. Army Corps of Engineers to carry out an independent analysis of the project.¹²⁷

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January 2000

Senator Feinstein proposes new bridge south of the Bay Bridge.

Noting that a repaired Bay Bridge will not carry more traffic than the original span, and that it will be unlikely to carry rail, Diane Feinstein writes a letter to Governor Davis endorsing the idea of a new bridge to connect southern Alameda County with San Francisco and San Mateo Counties.

January 2000

Governor Davis activates “Buy America” provisions to exclude foreign steel.

Governor Davis orders that federal funds be used in the Bay Bridge project. The move reportedly follows lobbying by labor unions unhappy with the use of foreign steel on the Carquinez Bridge retrofit. The use of federal funds triggers a federal law that will require Bay Bridge contractors to use domestic steel unless the use of foreign steel is at least 25 percent cheaper.¹²⁸

January 2000

Mayor Willie Brown lobbies at the White House against building new bridge.

San Francisco Mayor Brown meets with presidential advisors including White House Chief of Staff John Podesta. He says retrofitting the existing bridge will be quicker and safer than building a new span, and asks the White House to meet with UC Berkeley critic Dr. Abolhassan Astaneh-AI.¹²⁹

February 11, 2000

Professor lobbies against bridge at White House.

UC professor and bridge critic Astaneh-Asl meets with White House officials. He tries to persuade advisors to President Clinton that the bridge design is unsafe.¹³⁰

April 2000

Federal Highway Administration (FHWA) commissions Army Corps study of bridge design.

In an effort to mediate between the conflicting parties, the FHWA commissions the Army Corps of Engineers to study the design of the Bay Bridge east span project. By this time, Caltrans has reportedly spent \$70 million on design and engineering for the new span.¹³¹

April 17, 2000

California Transportation Commission takes Navy to task.

The California Transportation Commission writes a strong letter to the Navy accusing it of jeopardizing safety by obstructing progress on the Bridge.¹³²

April 14, 2000

*Jeff Morales replaces Jose Medina as Director of Caltrans.*¹³³

May 2000

Caltrans completes retrofitting of 1,039 bridges; 1,155 left to go.

Caltrans completes the so-called "Phase 1" of its two-phase bridge retrofit program. Phase 1 included 1,039 bridges identified in need of retrofitting after the Loma Prieta earthquake. Phase 2, in which an additional 1,155 bridges identified after the Northridge earthquake will be retrofitted, is still underway. The retrofit of the state-owned toll bridges is being managed separately from the bridges included in Phases 1 and 2.¹³⁴

May 5, 2000

Federal government forces Navy to give up disputed Yerba Buena Island land.

White House Chief of Staff John Podesta, who had been lobbied by Governor Davis, orders the Navy to transfer the disputed land to Caltrans. The chief counsel of the Federal Highway Administration later says this was because "Safety was the issue ... they did it because the bridge could fall down and people could die." However, the decision will not be announced for another five months, pending the result of a U.S. Army Corps of Engineers study into the bridge design.¹³⁵

July 12, 2000

Interim retrofit of east span completed.

Caltrans completes interim retrofit of the existing Bay Bridge east span.¹³⁶

August 2000

*Design of viaduct portion of the new east span completed.*¹³⁷

September 22, 2000

Army Corps of Engineers endorses northern alignment.

U.S. Army Corps of Engineers releases a report endorsing the decision to rebuild rather than retrofit the existing east span.¹³⁸

October 2000

Caltrans initiates study on extending Bridge bike lane.

Caltrans initiates a \$2 million study on the feasibility of having the planned bike lane run all the way from Oakland to San Francisco. The extended bike lane could cost \$100 million (as opposed to the expected \$50 million for the already-approved bike lane from Oakland to Yerba Buena Island).¹³⁹

October 10, 2000

Delayed environmental meeting finally held.

A key environmental meeting involving Caltrans and the federal agencies finally occurs. The meeting, to identify a "Least Environmentally Damaging Practicable Alternative" under the Clean Water Act, was delayed for over a year due to disputes and questions

among various agencies about issues such as construction impacts and choice of a northern versus southern alignment. According to the California State Auditor, these disputes contributed nearly two years of delay in the design and environmental process for the east span replacement.¹⁴⁰

October 22, 2000

Army Corps study gives qualified support to Bridge design.

The Army Corps of Engineers releases its study on the bridge design, widely viewed as the arbiter of the design dispute between San Francisco, the Navy, and Caltrans. The study says that Caltrans is “moving toward a path to design a bridge that meets the seismic performance criteria.” However, it notes that the design is not complete and that the Bridge does not yet meet a “lifeline” standard guaranteeing its use ability by emergency crews after a large earthquake. The report recommends that Caltrans perform additional documentation, evaluation and testing of the replacement design as it nears completion.¹⁴¹

December 13, 2000

Metropolitan Transportation Commission (MTC) requests additional elements and changes for the bridge.

In a letter to Caltrans, MTC requests various additional elements for the bridge. These include using costlier white cement; adding an aesthetic light pipe to run the entire length; and using steel rather than concrete for the entire bicycle/pedestrian path. These are to be paid for with bridge tolls, under MTC’s existing authority to use tolls to pay for “amenities” on the new bridge.¹⁴²

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April 6, 2001

Higher Caltrans cost estimates released.

Caltrans informs the Legislature that the toll bridge seismic retrofit work will incur cost overruns of about \$2 billion, including an increase of \$1.3 billion on the Bay Bridge. The total cost estimate for the Bay Bridge is now \$3.3 billion. The estimate for the east span has gone up – earlier estimates were \$1.4-1.5 billion, now the estimate is \$2.6 billion. Caltrans attributes the overruns to several factors, including inadequate original estimates, a rise in construction costs, delays caused by lack of cooperation from the Navy, and disagreements among local jurisdictions about the span’s alignment and design.¹⁴³

Caltrans Director Jeff Morales expresses confidence that there will not be future additional overruns, calling the new estimates “high-end numbers.”¹⁴⁴

The Senate Select Committees on Bay Area Infrastructure and Transportation requests that MTC perform an independent analysis of Caltrans cost estimates. MTC will contract with Bechtel Infrastructure Corporation to do the analysis.¹⁴⁵

May 8, 2001

Final Environmental Impact Statement (EIS) for the east span project released.

The final EIS is released, slightly more than four years after the environmental review process was begun.

July 2001

Independent cost review predicts further cost increases.

A Bechtel study reviews Caltrans' toll bridge retrofit cost estimates. It concludes that in addition to the \$2 billion cost overruns identified by Caltrans, there could be yet further increases of \$250-630 million more. This includes potential increases of \$190-440 million on the east span project.¹⁴⁶

July 11, 2001

Record of Decision signed.

The Federal Highway Administration (FHWA) approves the Record of Decision for the east span project. This occurs two years after the date originally predicted by Caltrans and the Federal Highway Administration. It clears the way for Caltrans to advertise for contractors.¹⁴⁷

September 11, 2001

Terrorist attacks set stage for higher costs.

The September 11 terrorist attacks trigger increases in the costs of insurance and bonding for large construction projects.

September 15, 2001

Legislature enacts new funding plan to deal with cost overruns.

After weeks of difficult negotiations among legislators from Northern and Southern California and Caltrans, the Legislature approves AB 1171, a new funding plan for the bridge projects.¹⁴⁸ It caps funding for the entire toll bridge seismic retrofit program at \$5.085 billion. It allocates \$4.637 billion from various sources to pay for program projects.¹⁴⁹

The package includes a \$448 million reserve. This is motivated by the potential additional cost overruns identified recently by Bechtel (although it falls short of the \$630 million in potential additional overruns estimated in the July 2001 Bechtel study).

The legislation uses Caltrans' recent estimate that the east span will cost \$2.6 billion. MTC disagrees with this estimate, favoring a more conservative estimate of \$3.1 billion.¹⁵⁰

Of the total amount authorized under AB 1171, 45 percent is funded by tolls and 55 percent is state/federal funds.¹⁵¹

AB 1171 authorizes the state to issue bonds securitized by the seismic surcharge on bridge tolls. The toll surcharge is authorized to be extended by 30 years (through December 31, 2037), and may bring in up to \$4.72 billion (\$2.28 billion for the bridges, plus additional funds for debt service).¹⁵²

The package also includes \$790 million from the Seismic Retrofit Bond Act of 1996, \$795 million from the State Highway Account, and \$642 million from the federal Highway Bridge Replacement and Rehabilitation Fund.¹⁵³

At this time, Metropolitan Transportation Commission (MTC) reportedly sought greater control of the bridge project, but the administration and Caltrans Director Jeff Morales resisted.¹⁵⁴ In the end, AB 1171 stated that Caltrans "has full and sole responsibility for completion of all seismic retrofit projects on the bay area bridges."

At this time, Caltrans estimates that the east span will be complete by May 2007.¹⁵⁵

December 19, 2001

Skyway bids opened, come in high.

Bids for the skyway section of the new east span are opened, and the low bid is about \$300 million over the official estimates.¹⁵⁶ The high bid uses up all but \$150 million of the contingency fund created earlier this year by the Legislature.¹⁵⁷

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January 17, 2002

*\$1.04 billion contract awarded for skyway portion of east span.*¹⁵⁸

January 29, 2002

Groundbreaking for the new east span.

As the state holds its official groundbreaking, Caltrans predicts the new bridge will be open in five years.¹⁵⁹

March 25, 2002

Caltrans annual report to Legislature.

Despite the higher-than-expected bids for the skyway section, Caltrans “remains committed to delivering the program as planned for in AB 1171.”¹⁶⁰ The cost estimate remains unchanged: “The Department will pursue cost saving measures aggressively to stay within the \$2.6 billion project budget.”¹⁶¹

Caltrans predicts that the bridge will be open to westbound traffic in late 2005, and eastbound traffic in 2007.¹⁶²

June 2002

Predicted completion date pushed back.

Caltrans project plans estimate that the east span will be open to traffic in 2009.¹⁶³ The previous projection had been for completion in 2007.

August 1, 2002

State auditor analyzes cost overruns.

An auditor’s report cites several reasons for cost overruns, including: the Bay Area’s choice of a more expensive “signature” span; increases in support costs such as salaries and consulting fees; delays in the project, some of them caused by disagreements between Caltrans and other entities such as the U.S. Navy; and the overall complexity of the project.

November 2002

*Caltrans begins taking bids for replacing the for west approach of the Bay Bridge’s west span.*¹⁶⁴

December 2002

State runs out of money for highway projects.

The state’s fiscal crisis forces the California Transportation Commission to freeze new spending on transportation projects. The freeze does not affect seismic retrofits, but stops work on highway interchanges, road repairs and new transit service.¹⁶⁵

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January 21, 2003

*Contract for the self-anchored suspension (SAS) tower marine foundation advertised for bidding.*¹⁶⁶

The concrete and steel foundation for the 525-foot steel tower is called the T1 footing. Further out in the bay will be the “E2” support for the bridge’s twin road decks. These foundations are known as the “marine” foundations because they will be built in the bay.

February 2003

Heavy construction work begins on skyway portion.

Workers and machinery begin pounding 160 piles into the bay floor. They will anchor the 28 columns that will hold up the twin concrete viaducts of the “skyway” portion. The viaducts will extend from Oakland to the bridge’s single-tower suspension span, which will stretch to Yerba Buena Island.¹⁶⁷

February-March 2003

Contractors tell Caltrans its plans are unrealistic and will inhibit bidding.

Leading bridge contractors warn that Caltrans is preparing to take bids on the project under a set of unrealistic expectations that will deter bidders. They say that the cost estimates are too low, and that the schedule is unrealistic for this unique bridge design. Among the issues noted are the large scale of the project and the limited market for barges, cranes, and labor. Additional problems include the difficulty of getting bond underwriters to make loans on jobs of this size in the post-September 11 environment. All in all, they are dubious about the feasibility of bidding on the project when bidding opens in June.¹⁶⁸

March 2003

Caltrans’ annual report to the Legislature revises cost upwards.

Caltrans’ annual report indicates higher costs than anticipated under the 2001 AB 1171 funding plan. The estimated cost of a new east span is up to \$2.95 billion (it had been \$2.6 billion). The estimated cost of the west span retrofit is \$30 million less (down to \$670 million). The cost remains within the contingency authorized under AB 1171.¹⁶⁹

Among the factors cited as contributing to the mistaken estimates: the unique scale and complexity of the project, changes in the construction bonding and insurance markets, and fluctuations in the steel industry. The report also notes increased costs for public works contracts since September 11, 2001. The report notes concern that these trends may contribute to there being fewer bidders, less competition, and higher prices for the project.¹⁷⁰

Caltrans estimates that the westbound lanes will be open to traffic in late 2006, with the eastbound lanes open in late 2007.¹⁷¹

May 14, 2003

Caltrans pushes back deadline for bidding on self-anchored suspension span.

After outreach meetings and contractor feedback suggested there may be insufficient bidding, Caltrans makes several adjustments to the Self-anchored suspension (SAS) project and moves the deadline for bids from June 3 to August 5. Among the key issues addressed is a loosening of the “Buy America” requirements for steel.¹⁷²

May 27, 2003

Contract awarded for the “W2 Land Foundation.”

The W2 Land Foundation consists of the westernmost foundations and columns of the self-anchored suspension bridge, which are to be built on Yerba Buena Island.¹⁷³

June 2003

*Construction begins on seismic retrofit of Bay Bridge west approach in San Francisco.*¹⁷⁴

July 2003

Caltrans alters contracting to encourage bidding competition.

In an effort to increase bidding competition on Bay Bridge contracts, Caltrans divides the four contracts on the east span into 13 smaller contracts.¹⁷⁵

August 3, 2003

Legislation eases construction bonding requirements.

The Governor signs AB 1745, which relaxes the minimum bonding required for contractors on large Caltrans construction projects. The bill is meant to address escalating costs in the construction bonding insurance market, which threaten to constrain bidding on projects such as the Bay Bridge.¹⁷⁶ The flux in the reinsurance market is blamed on diverse factors including the September 11 attacks and the Enron scandal.¹⁷⁷

August 19, 2003

Self-anchored suspension (SAS) tower marine foundation bid opened; is higher than expected.

The single bid received for the marine foundation contract is opened, and is 63 percent higher than the Caltrans engineer's cost estimate (\$210 million bid versus a \$129 million estimate).¹⁷⁸

October 10, 2003

Caltrans rejects single bid on marine foundations; initiates independent review of procedures.

Caltrans rejects the single bid on the SAS tower marine foundations as unacceptably high. Caltrans will instead repackage the project and re-bid it. It will also hire an independent review committee, chaired by Thomas R. Warne, former Director of the Utah Department of Transportation. The committee will analyze the bidding process and recommend changes to Caltrans' contracting and bidding processes.¹⁷⁹

October 17, 2003

*Caltrans re-advertises self-anchored suspension (SAS) marine foundation contract.*¹⁸⁰

November 14, 2003

Caltrans reports financial plan to Federal Highway Administration (FHWA)

Caltrans' annual financial report to the FHWA estimates the total cost of the toll bridge seismic retrofit program at \$4.96 billion. It reports that the current estimated cost of the east span is \$2.98 billion. Caltrans notes that the estimated completion date for the east span to be open to traffic has been pushed back to 2011.¹⁸¹

November 17, 2003

Arnold Schwarzenegger inaugurated as Governor.

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Early January 2004

One of the foundations of the east span's suspension span is poured.

The pouring of more than 5,300 cubic yards of concrete completes the first of two foundations on Yerba Buena Island.¹⁸²

March 2004

Contract awarded to design and build a temporary bridge structure.

The temporary structure will connect the Yerba Buena Island Tunnel to the existing bridge, and allow removal of a portion of the bridge for installation of a permanent transition. The work is scheduled for completion in October 2005.¹⁸³

March 2, 2004

Bay Area votes to raise tolls for transit and highway projects.

Bay Area voters pass Regional Measure 2. It will raise their bridge tolls from \$2 to \$3 in order to fund improvements including seismic strengthening of BART's Transbay tube, a new Transbay Terminal and downtown Caltrain extension in San Francisco, new ferry service for the East Bay and Peninsula, and a fourth bore for the Caldecott Tunnel.¹⁸⁴

April 1, 2004

Contract awarded for construction of suspension span marine's foundations.

The contract is awarded more than a year after it was first advertised for bidding.¹⁸⁵ The new bid is \$50 million lower than the earlier bid.¹⁸⁶

April 5, 2004

Independent Review Committee warns that SAS costs will be high.

The Independent Review Committee appointed in October 2003 warns that the cost of the self-anchored suspension (SAS) could be higher than currently planned. Caltrans' estimate of the SAS is \$800 million, but feedback from the construction industry indicates it could go up to \$1.5 billion. The review team says that Caltrans may not be able to significantly reduce the cost without choosing a different design.¹⁸⁷

May 26, 2004

Single bid for self-anchored suspension (SAS) portion is higher than expected.

Caltrans discloses that it has only received a single bid to build the self-anchored suspension portion of the east span. The sole bid came in at \$1.4-1.8 billion (in contrast to the earlier prediction it would cost \$733 million). The bidder was a consortium led by American Bridge, Nippon Steel Bridge and Flour Enterprises. The bidders say the price could come down to \$1.4 billion if they are able to escape “Buy America” rules regarding steel supplies.¹⁸⁸ Caltrans has 60 days to review the bid, but will later extend the deadline until September 30.

August 2004

Bechtel sees little benefit in re-bidding.

A Bechtel review of Caltrans cost estimates, commissioned by Metropolitan Transportation Commission (MTC), echoes Caltrans in concluding that there is little opportunity for cost savings to be achieved by rebidding or redesigning the Bay Bridge east span. According to Caltrans, re-bidding the current self-anchored suspension (SAS) could delay the project up to 1.5 years and could add up to \$200 million in additional costs. Redesigning the SAS could save up to \$85 million, but could also end up costing an extra \$310 million. It could lead up to four years of delay. Bechtel’s review concludes that “Caltrans’ conclusions are reasonable.”¹⁸⁹

August 16, 2004

Bridge cost estimates rise to \$5.1 billion.

The Schwarzenegger administration announces that the estimated cost of rebuilding the east span has gone up to \$5.1 billion from the estimate of \$2.6 billion used at the time of AB 1171. About half of the increase (\$1.3 billion) is blamed on cost increases for the self-anchored suspension (SAS) portion of the bridge.

But overruns are occurring on other sections and other bridges as well. For example, the estimated cost of the skyway section of the Bay Bridge east span is now \$1.46 billion, almost half a billion more than estimated when the contract was awarded. And the Richmond-San Rafael Bridge retrofit, estimated to cost \$665 million at the time of AB 1171, is now estimated to cost \$914 million.

Officials blame the cost increases on many factors, including increases in the costs of labor and materials; industry consolidation of suppliers, fabricators, and large construction project bidders; and higher insurance and bonding costs after September 11.¹⁹⁰ The administration has offered to pay \$300 million in state money to demolish the old bridge, but wants a new financial plan under which the Bay Area will pay for future bridge costs and overruns.¹⁹¹

Around the same time, an internal review by Caltrans discloses that design and engineering services contracted out to private firms have contributed \$500 million to costs on the Bay Bridge retrofit.¹⁹²

Caltrans now calls the AB 1171 schedule to complete the East span by 2007 “unrealistic.” Caltrans says the new span will be open to traffic in 2010 and complete in 2011.¹⁹³

August 16, 2004

Schwarzenegger Administration proposals for bridge funding surprise Bay Area.

The administration proposes that overruns be financed by diverting toll funds from the toll hike approved by Bay Area voters under Regional Measure 2. Those were originally intended to pay for other projects, including seismic retrofitting of BART’s Transbay tube. Administration officials blame the overruns on the Bay Area’s design choice of bridge design: “If they want a signature bridge, they are going to have to pay for it,” says an administration spokesman. Bay Area officials react with surprise and indignation. MTC officials propose their own plan under which the Bay Area pays for 57 percent of the overruns.¹⁹⁴

The Governor also proposes an audit of the Bay Bridge project to investigate the delays and overruns, and proposes that oversight of the project be given to MTC.

August 26, 2004

Legislature requests audit of the Bay Bridge project.

The State Legislature directs the California State Auditor to conduct an audit of Bay Bridge cost overruns.

August 27, 2004

Legislation to fund award of self-anchored suspension (SAS) contract dies in Senate.

AB 2366, a stop-gap measure intended to allow the awarding of the contract for the SAS span, fails to get out of the Senate. The bill would have allowed the Bay Area to advance to Caltrans up to \$520 million in toll revenues in order to allow the SAS contract to be awarded before the bid expired.

September 2004

Administration asks Federal Highway Administration (FHWA) to lead a new risk assessment.

At the request of the Secretary of Business, Transportation and Housing, FHWA agrees to assemble a Peer Review Team to conduct a risk assessment of Bay Bridge project alternatives, ranging from building the current SAS design to starting over with a new design. The team will assess the risk that each of the main alternatives might not achieve its key objectives.¹⁹⁵

September 3, 2004

State activates Independent Review Team to address self-anchored suspension (SAS) span.

The Independent Review Team that has advised the administration on other bridge issues in the past is tasked with looking at the single bid received on the SAS portion of the bridge.[†] The panel of construction and transportation industry experts is to assess the viability and risks of awarding the contract, rebidding the contract, or redesigning the span.¹⁹⁶

September 25, 2004

Bond agency predicts \$6 tolls.

Fitch Ratings slightly downgrades the California Infrastructure and Economic Development Bank's bond rating, and said there is a "strong likelihood" of \$6 tolls in the Bay Area to pay for cost overruns on the bridge retrofit.¹⁹⁷

September 30, 2004

Expiration of sole Bridge bid.

The administration's Independent Review Team recommends not awarding the contract to the current single bidder. Instead, the state should advance further analyze the redesign alternatives, and in case those don't prove feasible, it should also be preparing to rebid the SAS contract.¹⁹⁸

Sunne Wright McPeak, Secretary of the Business, Transportation and Housing Agency, announces that Caltrans will not accept the single bid for construction of the SAS portion of the Bridge. Instead, the agency will engage in intensive consultations with the construction agency and explore whether to resubmit the original design in an attempt to attract more bids, or possibly reopen the design process to find a less expensive design. The administration will present its findings when the Legislature reconvenes in December.

October 20, 2004

Work completed on the W2 Land Foundation.

The foundation on Yerba Buena Island for the suspension span is completed.¹⁹⁹

November 1, 2004

*Will Kempton appointed new Director of Caltrans.*²⁰⁰

November 1-15, 2004

Various players begin gearing up for potential redesign of Bay Bridge.

[†] The panel, headed by Thomas Warne, was previously known as the Independent Review Committee.

On November 1, Caltrans sends a letter to dozens of construction firms soliciting ideas about alternative designs for the Bay Bridge. Several days later, more than 40 firms attend a Sacramento meeting to discuss the feasibility of six potential designs. Meanwhile, Caltrans begins meeting with other government agencies to inquire about potential permitting requirements.²⁰¹

Meanwhile, the Peer Review Team convened by the Federal Highway Administration (FHWA) begins its risk assessment. The multidisciplinary team consists mostly of FHWA officials, but also includes experts from state transportation departments in Nevada, South Carolina, Massachusetts, and academics. The team will examine six project alternatives identified by Caltrans. The alternatives include redesigning or re-bidding the SAS, various cable-stayed designs, and a skyway design.^{202‡}

November 19, 2004

Independent Review Team issues a report endorsing a cable-stayed design.

The Independent Review Team concludes that re-designing the bridge using a cable-stayed design is preferable to continuing to build the Self-anchored suspension (SAS) design. Their review finds that the cable-stayed alternatives can meet seismic objectives and would have environmental impacts virtually identical to the SAS design. It finds that the cable-stayed alternatives, being simpler to construct, present fewer risks of schedule delays than the SAS and could save over \$600 million. The team does not include the skyway alternative in its comparison.²⁰³

December 2004

U.S. Peer Review Team reports on risks of alternatives.

The Peer Review Team convened by the Federal Highway Administration (FHWA) rates the risk of several alternatives. Overall, it concludes that the risks of not achieving project objectives would be the lowest if Caltrans continued to build the existing SAS design. Risks are judged to be considerably higher for a skyway redesign, and highest for a redesign using the cable-stayed alternative. The dominant factor contributing to higher risk for a redesign is public acceptance. However, in terms of cost overruns or delays associated with technical and management complexity, the self-anchored suspension (SAS) design is the riskiest and the skyway the least risky.²⁰⁴

December 8, 2004

Caltrans re-evaluates the alternatives.

Caltrans completes its own review of six alternatives, including re-bidding or redesigning the SAS; switching to a cable-stayed design; or switching to a skyway design.

The Department recommends re-advertising the SAS contract with modifications and enhancements to encourage bidding and make it easier to build. Suggested changes

‡ The “skyway” alternative is a viaduct style bridge with no suspension section or tower. The term “skyway” is also commonly used to refer to the viaduct portion of the SAS design already under construction.

include easing the rules on using domestic steel, a new approach to bonding and insurance, and hiring outside construction management expertise. At the same time, Caltrans also recommends further consideration of the skyway alternative because of its high potential for cost savings.²⁰⁵

December 10, 2004

Administration endorses skyway redesign; wants higher bridge tolls.

Business, Transportation and Housing Secretary Sunne Wright McPeak announces that the Administration has decided to scrap the SAS design and redesign the bridge as a skyway (viaduct) structure all the way across (an approach originally proposed and rejected seven years earlier). The redesigned bridge would have no “signature” suspension span or tower. The Administration reiterates its intention of having higher Bay Area bridge tolls in order to pay a larger share of the cost overruns on the project.

Acknowledging that there is no consensus among the experts over which design is best, McPeak says the skyway option can deliver the bridge in the same amount of time as the SAS and save \$300-400 million. A decisive factor is the technical complexity of the SAS design, and the greater certainty that the skyway can be delivered within the projected budget and schedule. McPeak says the redesigned bridge can be completed by 2011-2012.²⁰⁶

Some Bay Area leaders are unhappy with the aesthetics of the skyway and the prospect of the Bay Area shouldering most of the cost overruns through higher bridge tolls.²⁰⁷ However, Senate President Pro Tem Don Perata suggests the Bay Area should accept the redesign and focus on the financing.²⁰⁸ Secretary McPeak says that while the skyway design is less eye-catching, it has the advantage of offering drivers “unfettered vistas of the bay.”²⁰⁹

REFERENCES

- ¹ “Bridging the Bay, Bridging the Campus,” website from an exhibit featuring materials from eight libraries on the UC Berkeley campus.
http://www.lib.berkeley.edu/news_events/exhibits/bridge/sfobay.html.
- ² “Bridging the Bay, Bridging the Campus,”
http://www.lib.berkeley.edu/news_events/exhibits/bridge/sfobay.html.
- ³ Governor’s Board of Inquiry on the 1989 Loma Prieta Earthquake, *Competing Against Time*, Report to Governor George Deukmejian from The Governor’s Board of Inquiry on the 1989 Loma Prieta Earthquake, May 31, 1990, 137.
- ⁴ “Bridging the Bay, Bridging the Campus,”
http://www.lib.berkeley.edu/news_events/exhibits/bridge/sfobay.html, Governor’s Board of Inquiry, *Competing Against Time*, 34.
- ⁵ Vorderbrueggen and Peele, “Politics, Indecision Trumped Safety;” inflation calculation made using U.S. Bureau of Labor Statistics Consumer Price Index calculator, <http://www.bls.gov/cpi/home.htm>.
- ⁶ California Legislative Analyst, “Analysis of California Toll Bridge Funding,” April 1980, 6.
- ⁷ Governor’s Board of Inquiry, *Competing Against Time*, 35.
- ⁸ “The Sylmar Earthquake,” TheFreeDictionary.com,
<http://encyclopedia.thefreedictionary.com/Sylmar%20earthquake>
- ⁹ California State Auditor, *Department of Transportation: Its Seismic Retrofit Expenditures Comply With the Bond Act and Its Reimbursement of Interim Funding for Fiscal Years 1994-95 and 1995-96 is Nearly Complete*, December 2003, 3.
- ¹⁰ California Legislative Analyst, “Analysis of California Toll Bridge Funding,” April 1980, 2, 27.
- ¹¹ California Legislative Analyst, “Analysis of California Toll Bridge Funding,” 4-5.
- ¹² Reka Goode and Catalina Alvarado, “The Name Game – Or, Who is James Lick and Why is There a Freeway Named For Him?” *Transactions*, Metropolitan Transportation Commission, August 1997,
<http://www.mtc.ca.gov/publications/transactions/ta0897.htm>.
- ¹³ Governor’s Board of Inquiry, *Competing Against Time*, 36-37.
- ¹⁴ California Department of Transportation, “Toll Bridge Seismic Retrofit Program Annual Report,” April 2001, 4.
- ¹⁵ Governor’s Board of Inquiry, *Competing Against Time*.
- ¹⁶ California Department of Transportation, “Toll Bridge Seismic Retrofit Program Annual Report 2002,” March 2003, 2.
- ¹⁷ California Department of Transportation, “Seismic Retrofit Strengthening of the San Francisco-Oakland Bay Bridge: Report to the California Transportation Commission,” California Department of Transportation, Division of Structures, September 10, 1992.
- ¹⁸ GlobalSecurity.org, “Base Realignment and Closure (BRAC),”
<http://www.globalsecurity.org/military/facility/brac.htm>.
- ¹⁹ Pete Carey and Christopher H. Schmitt, “After Four Years of Work, Nearly Two-Thirds of At-Risk Bridges and Crossings Still Wait Retrofitting; Caltrans Braces for Next Time,” *San Jose Mercury*, January 23, 1994, 6D.
- ²⁰ Vorderbrueggen and Peele, “Politics, Indecision Trumped Safety.”
- ²¹ Seismic Advisory Board, *The Continuing Challenge: Report on the Northridge Earthquake of January 17, 1994*, Report to the Director, California Department of Transportation, October 1994, 7-12.

-
- ²² U.S. Army Corps of Engineers, *Evaluation & Assessment of Proposed Alternatives to Retrofit/Replace the East Span of the San Francisco-Oakland Bay Bridge*, September 22, 2000, Figure 1; U.S. Army Corps of Engineers, *Evaluation and Assessment of Proposed Alternatives to Retrofit/Replace the East Span of the San Francisco-Oakland Bay Bridge*, October 27, 2000, Appendix 1.
- ²³ “Bay Bridge Milestones,” *Contra Costa Times*, <http://www.realcities.com/mld/cctimes/news/2610054.htm>, posted February 3, 2002.
- ²⁴ Antonio A. Prado, “Quake-Proofing San Francisco Bay Bridge May Cost \$1.3 Billion,” *The Bond Buyer*, February 5, 1996, 2.
- ²⁵ Antonio A. Prado, “Quake-Proofing San Francisco Bay Bridge May Cost \$1.3 Billion,” *The Bond Buyer*, February 5, 1996, 2.
- ²⁶ Alex Barnum, Catherine Bowman, and Rick DelVecchio, “Bay Bridge Hassles Just Beginning; Staggering Number of Hurdles Ahead,” *San Francisco Chronicle*, February 12, 1996, A1.
- ²⁷ Letter from Joe Brown, District Director, California Department of Transportation, to Kenneth Y. Parsons, Base Conversion Commander, Department of the Navy, March 28, 1996.
- ²⁸ Bay Bridge Milestones,” *Contra Costa Times*, 2002.
- ²⁹ Bay Bridge Milestones,” *Contra Costa Times*, 2002.
- ³⁰ “Naval Station Treasure Island Reuse Plan,” prepared for the Office of Military Base Conversion, Planning Department, City & County of San Francisco, and the San Francisco Redevelopment Agency, July 1996.
- ³¹ Bay Bridge Milestones,” *Contra Costa Times*, 2002.
- ³² Ventry Engineering National Constructor’s Group, *San Francisco-Oakland Bay Bridge: East Bay Crossing Replacement Value Analysis Findings*, Executive Summary, December 1996.
- ³³ Letter from Seismic Advisory Board and the Peer Review Panel for the Seismic Safety Review of the Toll Bridge Retrofit Designs to James Van Loben Sels, Director, California Department of Transportation, December 10, 1996, http://www.mtc.ca.gov/projects/bay_bridge/bbletter.htm.
- ³⁴ Memorandum from Brian Maroney, Supervising Bridge Engineer, California Department of Transportation, to Eldon Davisson, Chief, Office of Structure Design, California Department of Transportation, December 17, 1996, in Brian Maroney, *Replacement Study for the East Spans of the San Francisco-Oakland Bay Bridge Seismic Safety Project*, California Department of Transportation, December 17, 1996.
- ³⁵ Brian Maroney, *Replacement Study for the East Spans of the San Francisco-Oakland Bay Bridge Seismic Safety Project*, California Department of Transportation, December 17, 1996, 34, 37.
- ³⁶ Letter from Harry Y. Yahata, Interim Director, California Department of Transportation, to Kenneth Y. Parsons, Base Conversion Commander, Department of the Navy, January 28, 1997.
- ³⁷ “SFOBB Chronological Table,” in U.S. Army Corps of Engineers, *Evaluation & Assessment of Proposed Alternatives to Retrofit/Replace the East Span of the San Francisco-Oakland Bay Bridge*, September 22, 2000.
- ³⁸ “Wilson Administration Recommends Replacing Bay Bridge,” California Department of Transportation News Release, February 13, 1997, <http://www.dot.ca.gov/hq/paffairs/news/pressrel/97pr07.htm>.
- ³⁹ Vorderbrueggen and Peele, “Politics, Indecision Trumped Safety.”
- ⁴⁰ “Wilson Administration Recommends Replacing Bay Bridge,” California Department of Transportation News Release, February 13, 1997, <http://www.dot.ca.gov/hq/paffairs/news/pressrel/97pr07.htm>.
- ⁴¹ Stephen Green, “Official Says Wilson Backs New Span for Bay Bridge,” *Sacramento Bee*, February 13, 1997, A1.

-
- ⁴² Robert Oakes, "Bay Area Residents Have Until July to Pick Bay Bridge Design," *Contra Costa Times*, February 19, 1997, A1.
- ⁴³ Dennis Akizuki, "Wilson's No-Frills Bridge Leaves East Bay Cold," *San Jose Mercury News*, February 17, 1997, A1.
- ⁴⁴ Akizuki, "Wilson's No-Frills Bridge."
- ⁴⁵ Stephen Green, "Official Says Wilson Backs New Span for Bay Bridge," *Sacramento Bee*, February 13, 1997, A1.
- ⁴⁶ Greg Lucas, "Wilson Wants New Bay Bridge; He'd Replace East Span With Concrete Structure," *San Francisco Chronicle*, February 13, 1997, A1.
- ⁴⁷ Lucas, "Wilson Wants New Bay Bridge."
- ⁴⁸ Associated Press, "Replacing Half of S.F. Bay Bridge Endorsed," *Los Angeles Times*, February 14, 1997, A20.
- ⁴⁹ Greg Lucas, "Wilson Wants New Bay Bridge."
- ⁵⁰ Greg Lucas, "Bill Socks bay Commuters With Bridges' Repair Tabs," *San Francisco Chronicle*, February 25, 1997, A18.
- ⁵¹ Jon Matthews, "Wilson Withdraws Plan for Bay Bridge Funding," *Sacramento Bee*, February 27, 1997, A4.
- ⁵² California Department of Transportation, *Retrofit Vs. New Bridge: An Economic Analysis for the East Span of the San Francisco-Oakland Bay Bridge*, Transportation Economics Planning Program, March 1997, 3.
- ⁵³ Metropolitan Transportation Commission, "East Span Replacement," http://www.mtc.ca.gov/projects/bay_bridge/bbhist.htm.
- ⁵⁴ Bay Bridge Milestones," *Contra Costa Times*, 2002.
- ⁵⁵ California Department of Transportation, *Land Use Issues Associated with the SFOBB East Span Seismic Safety Project and the Naval Station Treasure Island Draft Reuse Plan*, January 2000, 1-9.
- ⁵⁶ Memorandum from Engineering and Design Advisory Panel to Bay Bridge Design Task Force, June 24, 1997.
- ⁵⁷ California Department of Transportation, "Environmental Process," San Francisco-Oakland Bay Bridge East Span Seismic Safety Project website, <http://www.dot.ca.gov/dist4/eastspans/review2.html>.
- ⁵⁸ Bay Bridge Milestones," *Contra Costa Times*, 2002.
- ⁵⁹ Marjorie Blackwell, "May 1998: Countdown Begins on Bay Bridge Decisions," MTC, Transactions, May 1998, <http://www.mtc.ca.gov/publications/transactions/ta0598b.htm>.
- ⁶⁰ MTC, "Viaduct or Signature Bridge? Probably Some of Both," *Transactions*, June/July 1997, <http://www.mtc.ca.gov/publications/transactions/ta0697cs.htm>.
- ⁶¹ Letter from Terry E. Roberts, Director, Oakland Public Works Agency, to Mary King, Chair, Bay Bridge Design Task Force, May 15, 1997.
- ⁶² Letter from Charles W. Foster, Executive Director, Port of Oakland, to Mary King, Chair, Bay Bridge Design Task Force, June 20, 1997.
- ⁶³ Memorandum from Bay Bridge Engineering and Design Advisory Panel to Bay Bridge Design Task Force, June 24, 1997.
- ⁶⁴ Letter from Mayor Willie Brown, City of San Francisco, to Mary King, Chair, Bay Bridge Design Task Force, June 12, 1997.

-
- ⁶⁵ Letter from R. L. Smith II., Lieutenant Commander, U.S. Coast Guard, to Mary King, Chair, Bay Bridge Design Task Force, June 13, 1997.
- ⁶⁶ Memorandum from Lawrence D. Dahms, Executive Director, Metropolitan Transportation Commission, to Bay Bridge Design Task Force, June 20, 1997.
- ⁶⁷ “Final Count: Public Comments to Bay Bridge Design Task Force Received From 3/18/97 Through 6/16/97,” attachment to agenda for June 24, 1997 meeting of the Bay Bridge Design Task Force.
- ⁶⁸ Letter from James W. van Loben Sels, Director, California Department of Transportation, to Mary King, Chair, Bay Bridge Design Task Force, July 18, 1997.
- ⁶⁹ Letter from Mayor Willie Brown, City of San Francisco, to Mary King, Chair, Bay Bridge Design Task Force, July 21, 1997.
- ⁷⁰ Letter from Mary King, Chair, Bay Bridge Design Task Force, to James W. van Loben Sels, Director of California Department of Transportation, July 22, 1997.
- ⁷¹ U.S. Army Corps of Engineers, *Evaluation & Assessment of Proposed Alternatives*, September 22, 2000, Figure 1 and “SFOBB Chronological Table.”
- ⁷² Metropolitan Transportation Commission, “East Span Replacement,” http://www.mtc.ca.gov/projects/bay_bridge/bbhist.htm.
- ⁷³ U.S. Army Corps of Engineers, *Evaluation & Assessment of Proposed Alternatives*, September 22, 2000, Figure 1 and “SFOBB Chronological Table.”
- ⁷⁴ U.S. Army Corps of Engineers, *Evaluation & Assessment of Proposed Alternatives*, September 22, 2000, Figure 1 and “SFOBB Chronological Table.”
- ⁷⁵ Metropolitan Transportation Commission, “East Span Replacement,” http://www.mtc.ca.gov/projects/bay_bridge/bbhist.htm.
- ⁷⁶ Robert B. Gunnison, “Legislature Finally Set to OK New Bridge,” *San Francisco Chronicle*, August 11, 1997, A12; Dan Bernstein and Brad Hayward, “Agreement Reached on State Bridge Work,” *Sacramento Bee*, August 6, 1997, A3.
- ⁷⁷ Vorderbrueggen and Peele, “Politics, Indecision Trumped Safety.”
- ⁷⁸ California State Auditor, “California Department of Transportation: Seismic Retrofit Costs of State-Owned Toll Bridges Have Significantly Exceeded the Department’s Original Estimates and May Go Even Higher,” Bureau of State Audits, 2001-122, August 2002, 18.
- ⁷⁹ Letter from Mayor Willie Brown, City of San Francisco, to James W. van Loben Sels, Director, California Department of Transportation, September 5, 1997.
- ⁸⁰ California State Auditor, “California Department of Transportation: Seismic Retrofit Costs of State-Owned Toll Bridges,” 43.
- ⁸¹ Ronna Abramson, “Brown Terminal Plan Faces Criticism,” *San Mateo County Times*, October 9, 1997.
- ⁸² Vorderbrueggen and Peele, “Politics, Indecision Trumped Safety.”
- ⁸³ Metropolitan Transportation Commission, “East Span Replacement,” http://www.mtc.ca.gov/projects/bay_bridge/bbhist.htm.
- ⁸⁴ “Bay Bridge Milestones,” *Contra Costa Times*, 2002.
- ⁸⁵ “SFOBB East Span Contracts,” chronology provided by California Department of Transportation, November 2004.
- ⁸⁶ Alex Barnum, “Experts Not at All Happy With Bay Bridge Designs,” *San Francisco Chronicle*, April 15, 1998, A15.

-
- ⁸⁷ California Department of Transportation, "Updated Major Project Financial Plan for the Toll Bridge Seismic Retrofit Program: San Francisco-Oakland Bay Bridge," submitted to the Federal Highway Administration, November 14, 2003, Appendix B; Bernice Yeung, "Sweat, Steel, and Setalch; Retrofitting the Bay Bridge Will Take Five Hears, Hundreds of Workers, A Million Bolts, and 19 Million Pounds of Iron," *San Francisco Weekly*, March 21, 2001.
- ⁸⁸ "Caltrans Gearing Up for West Span Retrofit Work," Transactions, May 1998, <http://www.mtc.ca.gov/publications/transactions/ta0598b1.htm>; Carl Nolte, "Bay Bridge Work Starting to Show," *San Francisco Chronicle*, September 25, 2000, A19.
- ⁸⁹ California Business, Transportation and Housing Agency, *The San Francisco-Oakland Bay Bridge East Span Seismic Safety Project 30% Design Report, Executive Summary*, May 29, 1998, 8.
- ⁹⁰ Letter from Terry E. Roberts, Director of Public Works Agency, City of Oakland, to Joseph Nicoletti, Chair, Bay Bridge Design Task Force, May 14, 1998.
- ⁹¹ Vorderbrueggen and Peele, "Politics, Indecision Trumped Safety."
- ⁹² Letter from James W. Kellogg, Acting Chair, California Transportation Commission, to Captain G.J. Buchanan, U.S. Navy, April 17, 2000.
- ⁹³ Memorandum from Lawrence D. Dahms, Executive Director, Metropolitan Transportation Commission, to Bay Bridge Design Task Force, June 17, 1998.
- ⁹⁴ Letter from Elihu Harris, Shirley Dean, Ken Bukowski, Ralph Appezzato, Patricia White, Bruce Mast, Don Perata, Matt Williams, Dion Aroner, and Larry Damon, to Supervisor Mary King, Chair, Bay Bridge Design Task Force, June 18, 1998.
- ⁹⁵ Sybil E. Hatch, "A Lifeline Link," *Public Roads*, May 1, 2003, 6:66, 38.
- ⁹⁶ Metropolitan Transportation Commission, "East Span Replacement," http://www.mtc.ca.gov/projects/bay_bridge/bbhist.htm.
- ⁹⁷ Alex Barnum, "Clamor Grows Over Bridge Vote," *San Francisco Chronicle*, June 24, 1998, A1.
- ⁹⁸ Barnum, "Clamor Grows Over Bridge Vote."
- ⁹⁹ Memoranda from Lawrence D. Dahms, Executive Director, MTC, to Bay Bridge Design Task Force, June 4, 1998 and June 17, 1998.
- ¹⁰⁰ Metropolitan Transportation Commission, "East Span Replacement," http://www.mtc.ca.gov/projects/bay_bridge/bbhist.htm.
- ¹⁰¹ California State Auditor, "California Department of Transportation: Seismic Retrofit Costs of State-Owned Toll Bridges," 23, 43; California Department of Transportation, "Toll Bridge Seismic Retrofit Program Annual Report," April 2001, 22.
- ¹⁰² U.S. Department of Transportation, Federal Highway Administration, *San Francisco-Oakland Bay Bridge East Span Seismic Safety Project Draft Environmental Impact Statement/Statutory Exemption*, September 24, 1998.
- ¹⁰³ U.S. Department of Transportation, Federal Highway Administration, *San Francisco-Oakland Bay Bridge East Span Seismic Safety Project Draft Environmental Impact Statement/Statutory Exemption*, September 24, 1998, 4-94.
- ¹⁰⁴ Dan Morain, "Privatization Goal Elusive for Wilson," *Los Angeles Times*, November 26, 1998, A3; Stephen Green, "Engineers, State Settle 1985 Suit; Use of Private Firms Key Issue," *Sacramento Bee*, November 21, 1998, A1.
- ¹⁰⁵ Letter from Duncan L. Jones, Korve Engineering, to Annemarie Conroy, Executive Director, Treasure Island Development Authority, November 22, 1998.
- ¹⁰⁶ Letter from Hillary E. Gitelman, Environmental Review Officer, City of San Francisco Planning Department to Mara Melandry, California Department of Transportation District 4, November 23, 1998;

-
- Letter from Robert B. Pirie, Jr., Office of the Assistant Secretary of the Navy, Installations and Environment, to Mara Melandry, California Department of Transportation District 4, November 23, 1998.
- ¹⁰⁷ Letter from Shirley Dean, Mayor, City of Berkeley, et al., to James Spering, Chair, MTC, and James W. van Loben Sels, Director, California Department of Transportation, December 7, 1998.
- ¹⁰⁸ “Caltrans Identifies Northern Alignment Suspension Bridge as Preferred Alternative for Bay Bridge Seismic Project,” California Department of Transportation news release, December 28, 1998.
- ¹⁰⁹ Letter from Caltrans Seismic Advisory Board to Senator Barbara Boxer, December 30, 1998.
- ¹¹⁰ Bay Bridge Milestones,” *Contra Costa Times*, August 17, 2004.
- ¹¹¹ Lisa Vorderbrueggen and Thomas Peel, “San Francisco Opposition Delayed Project Two Years, While Costs Kept Rising,” *Contra Costa Times*, February 13, 2002.
- ¹¹² “Bay Bridge Milestones,” *Contra Costa Times*, 2004.
- ¹¹³ Letter from Mayor Willie Brown, City of San Francisco, and Mayor Jerry Brown, City of Oakland, to Governor Gray Davis, February 11, 1999.
- ¹¹⁴ Bay Bridge Milestones,” *Contra Costa Times*, 2002.
- ¹¹⁵ Letter from Rick Feher and Daniel Coman to Jose Medina, Director, California Department of Transportation, February 19, 1999, <http://www.oaklandbridge.com/>.
- ¹¹⁶ “Bay Bridge Milestones,” *Contra Costa Times*, 2004.
- ¹¹⁷ Letter from Jane Bartke, ABAG Legislation and Governmental Organization Committee Chair, to James P. Spering, Chair, MTC, February 23, 1999.
- ¹¹⁸ Bay Bridge Design Task Force/Engineering and Design Advisory Panel, Final Agenda, February 24, 1999.
- ¹¹⁹ Phillip Matier, Andrew Ross, “Governor Sinks Hope for Grander Span,” *San Francisco Chronicle*, March 12, 1999, A1.
- ¹²⁰ Letter from Governor Gray Davis to Richard Danzig, Secretary of the Navy, July 28, 1999.
- ¹²¹ “Bay Bridge Milestones,” *Contra Costa Times*, 2004.
- ¹²² California State Auditor, “California Department of Transportation: Seismic Retrofit Costs of State-Owned Toll Bridges,” 25.
- ¹²³ Memorandum from Steve Heminger, MTC, to Bay Bridge Design Task Force, September 24, 1999.
- ¹²⁴ U.S. Geological Survey, “Earthquake Probabilities in the San Francisco Bay Region: 2000 to 2030: A Summary of Findings,” Working Group on California Earthquake Probabilities, 1999, <http://geopubs.wr.usgs.gov/open-file/of99-517/of99-517.pdf>.
- ¹²⁵ “Bay Bridge Milestones,” *Contra Costa Times*, 2004.
- ¹²⁶ “Bay Bridge Milestones,” *Contra Costa Times*, 2004.
- ¹²⁷ Bay Bridge Milestones,” *Contra Costa Times*, 2002.
- ¹²⁸ Lisa Vorderbrueggen, “Bids on Bay Bridge to Start this Week; The Project’s Costs Could be Staggering,” *Contra Costa Times*, May 23, 2004, F4.
- ¹²⁹ “Bay Bridge Milestones,” *Contra Costa Times*, 2004.
- ¹³⁰ Lisa Vorderbrueggen and Thomas Peel, “San Francisco Opposition Delayed Project Two Years, While Costs Kept Rising,” *Contra Costa Times*, February 13, 2002; “Bay Bridge Milestones,” 2004.
- ¹³¹ Lisa Vorderbrueggen, “Span Plan to Get 4th Once-Over,” *Contra Costa Times*, April 26, 2000, A01.

-
- ¹³² Lisa Vorderbrueggen, "Span Plan to Get 4th Once-Over," *Contra Costa Times*, April 26, 2000, A01
- ¹³³ Megan Garvey, "Davis Replaces Caltrans Chief With Outsider," *Los Angeles Times*, April 15, 2000, A1.
- ¹³⁴ California State Auditor, "California Department of Transportation: Seismic Retrofit Costs of State-Owned Toll Bridges," August 2002, 6-7.
- ¹³⁵ Vorderbrueggen and Peele, "Politics, Indecision Trumped Safety."
- ¹³⁶ "SFOBB East Span Contracts," chronology provided by California Department of Transportation, November 2004.
- ¹³⁷ Metropolitan Transportation Commission, "East Span Replacement," http://www.mtc.ca.gov/projects/bay_bridge/bbhist.htm.
- ¹³⁸ U.S. Army Corps of Engineers, "Evaluation and Assessment of Proposed Alternatives to Retrofit/Replace the East Span of the San Francisco-Oakland Bay Bridge," September 22, 2000.
- ¹³⁹ Phil Matier, Andrew Ross, "Bicyclists Successful in Peddling Bay Bridge Bike Lanes," *San Francisco Chronicle*, October 16, 2000, A15.
- ¹⁴⁰ California State Auditor, "California Department of Transportation: Seismic Retrofit Costs of State-Owned Toll Bridges," 25, 43.
- ¹⁴¹ Philip Matier, Andrew Ross, "Army Corps Study Gives New Bay Bridge Span a Thumbs Up," *San Francisco Chronicle*, October 27, 2000, A25; Metropolitan Transportation Commission, "East Span Replacement," http://www.mtc.ca.gov/projects/bay_bridge/bbhist.htm.
- ¹⁴² California Department of Transportation, "Toll Bridge Seismic Retrofit Program Annual Report," April 2001, 25.
- ¹⁴³ Senate Floor Analysis of AB 1171, September 26, 2001; California Department of Transportation, "Toll Bridge Seismic Retrofit Program Annual Report," April 2001; Lisa Vorderbrueggen, "Price Tag for Bridge Doubles," *Contra Costa Times*, April 6, 2001, A1.
- ¹⁴⁴ Lisa Vorderbrueggen, "Bay Bridge Plan Has 60 Days," *West County Times* (Richmond, CA), April 17, 2001, A3.
- ¹⁴⁵ Bechtel Infrastructure Corporation, *Toll Bridge Seismic Retrofit Program Cost Review Report*, prepared for MTC, July 2001, 1.
- ¹⁴⁶ Bechtel Infrastructure Corporation, *Toll Bridge Seismic Retrofit Program Cost Review Report*, prepared for MTC, July 2001.
- ¹⁴⁷ "Bay Bridge Milestones," 2004.
- ¹⁴⁸ Andrew Lamar, "Bay Bridge Retrofitting Gets Funds," *Contra Costa Times*, September 15, 2001, A7.
- ¹⁴⁹ California Department of Transportation, "Toll Bridge Seismic Safety Retrofit Program Report for the Legislature and Governor," August 2004, 22.
- ¹⁵⁰ Aaron Davis, "\$500 Million Separates Bay Bridge Budget Ideas," *San Jose Mercury*, July 22, 2001.
- ¹⁵¹ California Department of Transportation, "Toll Bridge Seismic Safety Retrofit Program Report for the Legislature and Governor," August 2004, 22.
- ¹⁵² California Department of Transportation, "Toll Bridge Seismic Safety Retrofit Program Report for the Legislature and Governor," August 2004, 22.
- ¹⁵³ California Department of Transportation, "Toll Bridge Seismic Safety Retrofit Program Report for the Legislature and Governor," August 2004, 23.
- ¹⁵⁴ Lisa Vorderbrueggen, "Bay Bridge Blame Spans All Involved," *Contra Costa Times*, August 19, 2004, A1.

-
- ¹⁵⁵ California Department of Transportation, "Toll Bridge Seismic Safety Retrofit Program Report for the Legislature and Governor," August 2004, 19.
- ¹⁵⁶ California Department of Transportation, "Updated Major Project Financial Plan for the Toll Bridge Seismic Retrofit Program: San Francisco-Oakland Bay Bridge," submitted to the Federal Highway Administration, November 14, 2003, 18.
- ¹⁵⁷ Sean Holstege, "Governor Launches \$3 Billion East Bay Span Work," *Oakland Tribune*, January 30, 2002, 1.
- ¹⁵⁸ Bechtel Infrastructure Corporation, *Toll Bridge Seismic Retrofit Program Cost Review Report*, prepared for Bay Area Toll Authority, August 2004, 7; "SFOBB East Span Contracts," chronology provided by California Department of Transportation, November 2004.
- ¹⁵⁹ Sean Holstege, "Governor Launches \$3 Billion East Bay Span Work," *Oakland Tribune*, January 30, 2002, 1.
- ¹⁶⁰ Letter from Jeff Morales, Director, California Department of Transportation, to California Legislature, March 25, 2002.
- ¹⁶¹ California Department of Transportation, "Toll Bridge Seismic Retrofit Program Annual Report," December 2001, 8.
- ¹⁶² California Department of Transportation, "Toll Bridge Seismic Retrofit Program Annual Report," December 2001, 14.
- ¹⁶³ California Department of Transportation, "Updated Major Project Financial Plan for the Toll Bridge Seismic Retrofit Program: San Francisco-Oakland Bay Bridge," submitted to the Federal Highway Administration, November 14, 2003, Appendix A; California State Auditor, "California Department of Transportation: Seismic Retrofit Costs of State-Owned Toll Bridges," 18.
- ¹⁶⁴ California Department of Transportation, "Toll Bridge Seismic Retrofit Program Annual Report 2002," March 2003, 16.
- ¹⁶⁵ Sean Holstege, "Agency Ordered to Halt Spending on New Transportation Ventures Until February," *Tri-Valley Herald*, December 16, 2002.
- ¹⁶⁶ "SFOBB East Span Contracts," chronology provided by California Department of Transportation, November 2004.
- ¹⁶⁷ Michael Cabanatuan, "Piling it on – Loudly; Work on new span's foundation about to enter noisy next phase," *San Francisco Chronicle*, February 2, 2003.
- ¹⁶⁸ California Department of Transportation, "Toll Bridge Seismic Safety Retrofit Program," Report for the Legislature and Governor, August 2004, 10; Sean Holstege, "Caltrans Plans for New Span are Unrealistic, Contractors Say," *Oakland Tribune*, April 23, 2003; Sean Holstege, "Bridge Builders Not Ready to Cross Bay; Firms Say Caltrans' Relaxed Provisions Not Enough to Get Bids Aug. 5," *Oakland Tribune*, May 19, 2003.
- ¹⁶⁹ California Department of Transportation, "Toll Bridge Seismic Retrofit Program Annual Report 2002," March 2003, 6, 14.
- ¹⁷⁰ California Department of Transportation, "Toll Bridge Seismic Retrofit Program Annual Report 2002," March 2003, 6, 14-15.
- ¹⁷¹ California Department of Transportation, "Toll Bridge Seismic Retrofit Program Annual Report 2002," March 2003, 13.
- ¹⁷² Sean Holstege, "Caltrans Eases New Bay Bridge Schedule," *Oakland Tribune*, May 14, 2003; "Bidding Extended for Bay Bridge Superstructure Contract," *Bridge Design and Engineering*, Second Quarter 2003, 7.

-
- ¹⁷³ California Department of Transportation, "Updated Major Project Financial Plan for the Toll Bridge Seismic Retrofit Program: San Francisco-Oakland Bay Bridge," submitted to the Federal Highway Administration, November 14, 2003, 18.
- ¹⁷⁴ Bechtel Infrastructure Corporation, *Toll Bridge Seismic Retrofit Program Cost Review Report*, prepared for Bay Area Toll Authority, August 2004, 4.
- ¹⁷⁵ Lisa Vorderbrueggen, "Span Nears \$3 Billion Tag," *Contra Costa Times*, July 3, 2003, F4.
- ¹⁷⁶ Joseph Furtado, Assembly Floor Analysis of AB 1745, July 18, 2003.
- ¹⁷⁷ Sean Holstege, "Bridge Builders Not Ready to Cross Bay; Firms Say Caltrans' Relaxed Provisions Not Enough to Get Bids Aug. 5," *Oakland Tribune*, May 19, 2003.
- ¹⁷⁸ Independent Review Team, "San Francisco Oakland Bay Bridge Seismic Retrofit Program," Executive Summary and Preliminary Findings, September 30, 2004, 3, 18.
http://www.tomwarne.com/sample_engagements.htm.
- ¹⁷⁹ Independent Review Team, "San Francisco Oakland Bay Bridge Seismic Retrofit Program," Executive Summary and Preliminary Findings, September 30, 2004, 3, 18.
http://www.tomwarne.com/sample_engagements.htm.
- ¹⁸⁰ "SFOBB East Span Contracts," chronology provided by California Department of Transportation, November 2004.
- ¹⁸¹ California Department of Transportation, "Updated Major Project Financial Plan for the Toll Bridge Seismic Retrofit Program: San Francisco-Oakland Bay Bridge," submitted to the Federal Highway Administration, November 14, 2003, 2, Exhibit A, and Appendix A.
- ¹⁸² "Bay Bridge Milestone: Caltrans Pours Massive Foundation," *Caltrans News*, February 2004, 3.
- ¹⁸³ Bechtel Infrastructure Corporation, *Toll Bridge Seismic Retrofit Program Cost Review Report*, prepared for Bay Area Toll Authority, August 2004, 8.
- ¹⁸⁴ Michael Cabanatuan, "The Bay Area's Big Decision: Bridge toll boost would fund mass transit," *San Francisco Chronicle*, February 22, 2004.
- ¹⁸⁵ "SFOBB East Span Contracts," chronology provided by California Department of Transportation, November 2004.
- ¹⁸⁶ Independent Review Team, *East Span San Francisco Oakland Bay Bridge Safety Project*, Independent Review Team Final Report, November 19, 2004, 6.
- ¹⁸⁷ Independent Review Committee, "SFOBB IRC Enhanced CRIP Specification Development," Draft Report, April 5, 2004.
- ¹⁸⁸ Rich Saskal, "Now That's a High Bid; Officials Stunned at \$1.8B Bay Bridge Price Tag," *The Bond Buyer*, June 4, 2004, 1.
- ¹⁸⁹ Bechtel Infrastructure Corporation, *Toll Bridge Seismic Retrofit Program Cost Review Report*, prepared for Bay Area Toll Authority, August 2004, 25.
- ¹⁹⁰ California Department of Transportation, "Toll Bridge Seismic Safety Retrofit Program," Report for the Legislature and Governor, August 2004, 6, 12.
- ¹⁹¹ Tony Bizjak, "Bridge Going Up – and Its Costs Too," *Sacramento Bee*, September 7, 2004, A1.
- ¹⁹² Andrew LaMar and Mike Adamick, "Huge Consultant Bill for Bay Bridge," *Contra Costa Times*, August 26, 2004.
- ¹⁹³ California Department of Transportation, "Toll Bridge Seismic Safety Retrofit Program," Report for the Legislature and Governor, August 2004, 19.
- ¹⁹⁴ Mike Adamick, "Bridge Costs May Fall on Bay Area," *Contra Costa Times*, August 17, 2004, A1.

-
- ¹⁹⁵ U.S. Federal Highway Administration, *San Francisco-Oakland Bay Bridge Project Peer Review*, U.S. Department of Transportation, December 2004, executive summary.
- ¹⁹⁶ Independent Review Team, "San Francisco Oakland Bay Bridge Seismic Retrofit Program: Executive Summary, Preliminary Findings," September 30, 2004, 4.
- ¹⁹⁷ Kiley Russell, "Bond Agency Downgrades Bridge Rating," *Contra Costa Times*, September 25, 2004.
- ¹⁹⁸ Independent Review Team, "San Francisco Oakland Bay Bridge Seismic Retrofit Program: Executive Summary, Preliminary Findings," September 30, 2004, 11-12.
- ¹⁹⁹ "SFOBB East Span Contracts," chronology provided by California Department of Transportation, November 2004.
- ²⁰⁰ "Will Kempton Named New Head of Caltrans," *San Jose Mercury News*, November 2, 2004, 15A.
- ²⁰¹ Sean Holstege, "Bay Bridge Team Puts on Thinking Cap; Bay Bridge Team Braces for New Plans," *Oakland Tribune*, November 15, 2004.
- ²⁰² U.S. Federal Highway Administration, *San Francisco-Oakland Bay Bridge Project Peer Review*, U.S. Department of Transportation, December 2004, executive summary.
- ²⁰³ Independent Review Team, *East Span San Francisco Oakland Bay Bridge Safety Project*, Independent Review Team Final Report, November 19, 2004, executive summary.
- ²⁰⁴ U.S. Federal Highway Administration, *San Francisco-Oakland Bay Bridge Project Peer Review*, U.S. Department of Transportation, December 2004, executive summary.
- ²⁰⁵ California Department of Transportation, *Findings and Recommendation for Completion of the Main Span of the San Francisco-Oakland Bay Bridge East Span Seismic Safety Project*, December 8, 2004, executive summary.
- ²⁰⁶ Michael Cabanatuan, "Simpler? Definitely. Cheaper? Maybe. Even if the New Design Saves Money, State Official Says \$4 Toll is Likely," *San Francisco Chronicle*, December 11, 2004, A1; Sean Holstege, "Caltrans Goes Back to Square One on Bay Bridge," *Oakland Tribune*, December 10, 2004.
- ²⁰⁷ Sean Holstege, "Politicians Lead Howls Over Bay Bridge Plan," *Daily Review* (Hayward), December 11, 2004.
- ²⁰⁸ Phillip Matier and Andrew Ross, "Will Bay Area Get 'Freeway on Stilts' and Higher Toll?" *San Francisco Chronicle*, December 13, 2004, B1.
- ²⁰⁹ Carbanatuan, "Simpler? Definitely."